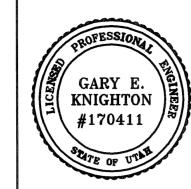
## PROJECT DESIGN TEAM:





ADDRESS:	95 W. GOLF COURSE ROAD, SUITE 101
	LOGAN, UT 84321
PHONE / FAX:	(435) 752-8501 / (435) 752-8597
CONTACTS:	STRUCTURAL ENGINEER: GARY KNIGHTON
	STRUCTURAL PM: TONY EKINS
	ARCHITECT: KELLY CHRISTOFFERSEN
	ARCHITECTURAL PM: COURTNEY WALLACE
E-MAIL:	STRUCTURAL ENGINEER: garyk@skylineaes.com
	STRUCTURAL PM: tony@skylineaes.com
	ARCHITECT: kelly@skylineaes.com
	ARCHITECTURAL PM: courtney@skylineaes.com
INTERNET:	www.skylineaes.com
PLUMBING / M	ECHANICAL / ELECTRICAL ENGINEERING:



nei@ida.net



120 NORTH TWELFTH AVENUE, POCATELLO, IDAHO 83201 (208) 232-2577 / (208) 234-0918

PLUMB: WINN MCBETH / MECH: GORDON NIELSON / ELEC: MIKE INSKEEP



BIG CREEK CAMPGROUND RESTROOMS BEAR LAKE STATE PARK, UTAH DFCM PROJECT #: 06190510 JOB #: 06-083 DATE OF PREPARATION: JUNE 5, 2006 **BID SET** 

# I.B.C. CODE REVIEW:

BUILDING OCCUPANCY: U BUILDING TYPE: VB ALLOWABLE AREA: 5,500 SQ.FT. ALLOWABLE HEIGHT: (1) STORY, 40'-0" DESIGN AREA: 512 SQ.FT. DESIGN HEIGHT: (1) STORY, 11'-6" NO MODIFICATION REQUIRED

FIRE RESISTANCE RATING REQUIREMENTS: NONE PER TABLE 601 FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALL: NONE PER TABLE 602

BUILDING OCCUPANT LOAD: MEN'S RESTROOM: 2 WOMEN'S RESTROOM: 2 CUSTODIAL: 1 (3) SHOWERS: (1) EACH UTILITY: 1 (1) DIRECT EXIT IS PROVIDED FROM EACH ROOM OR SPACE OF BUILDING

ACCESSIBILITY: ACCESSIBLE MEN'S RESTROOM ACCESSIBLE WOMEN'S RESTROOM (1) ACCESSIBLE SHOWER

# **AERIAL VICINITY MAP:**

INDEV #. CHEET #: CHEET NAME: DATE OF DEVICEON.							
INDEX #:	SHEET #:	SHEET NAME:	PREPARATION	REVISION:			
		STRUCTURAL PLANS:					
1	\$001	GENERAL STRUCTURAL NOTES AND SCHEDULES	06/05/06				
2	\$101	STRUCTURAL PLANS	06/05/06				
3	\$201	STRUCTURAL DETAILS	06/05/06				
·		ARCHITECTURAL PLANS:					
4	A001	SYMBOLS LEGEND / WALL TYPES	06/05/06				
5	A101	FLOOR PLAN	06/05/06				
6	A201	ADA ACCESSIBILITY PLAN / FIXTURE DIMENSION PLAN	06/05/06				
7	A202	INTERIOR ELEVATIONS	06/05/06				
8	A301	EXTERIOR ELEVATIONS	06/05/06				
9	A401	BUILDING SECTION "A" / ENLARGED DETAILS	06/05/06				
10	A501	ROOF PLAN	06/05/06				
11	A601	SCHEDULES / DOOR & WINDOW ELEVATIONS / DETAILS	06/05/06				
		PLUMBING PLANS:					
12	P001	PLUMBING NOTES & SPECIFICATIONS	06/05/06				
13	P002	PLUMBING SPECIFICATIONS	06/05/06				
14	P101	RESTROOM PLUMBING WASTE & WATER PLAN	06/05/06				
15	P501	PLUMBING DETAILS	06/05/06				
16	P601	PLUMBING SCHEDULES	06/05/06				
		MECHANICAL PLANS:					
17	M001	RESTROOM MECHANICAL PLAN	06/05/06				
18	M002	RESTROOM MECHANICAL PLAN	06/05/06				
19	M101	RESTROOM MECHANICAL PLAN	06/05/06				
20	M501	RESTROOM MECHANICAL PLAN	06/05/06				
21	M601	RESTROOM MECHANICAL PLAN	06/05/06				
		ELECTRICAL PLANS:					
22	E001	RESTROOM LIGHTING & POWER PLAN	06/05/06				
23	E101	RESTROOM LIGHTING & POWER PLAN	06/05/06				
24	E501	ELECTRICAL DETAILS	06/05/06				
25	E601	SCHEDULES & SINGLE-LINE DIAGRAM	06/05/06				

### **GENERAL**

- THE STRUCTURAL NOTES ARE INTENDED TO COMPLEMENT THE PROJECT SPECIFICATIONS. SPECIFIC NOTES AND DETAILS IN THE DRAWINGS SHALL GOVERN OVER THE STRUCTURAL NOTES AND TYPICAL DETAILS. TYPICAL DETAILS AND SECTIONS SHALL APPLY WHERE SPECIFIC DETAILS ARE NOT SHOWN
- 3. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS AND DIMENSIONS. IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN IN THE CONTRACT DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE FABRICATION OR CONSTRUCTION OF ANY EFFECTED
- 4. OMISSIONS OR CONFLICTS BETWEEN THE CONTRACT DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN CASE OF CONFLICT, FOLLOW THE MOST STRINGENT REQUIREMENT AS DIRECTED BY THE ARCHITECT/ENGINEER AT NO ADDITIONAL COST TO THE OWNER
- 5. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH ANY CHANGES, SUBSTITUTIONS OR MODIFICATIONS. ANY WORK DONE BY THE CONTRACTOR BEFORE RECEIVING WRITTEN APPROVAL WILL BE AT THE CONTRACTOR'S RISK. 6. THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES ANY ITEMS THAT ARE TO BE INTEGRATED INTO
- THE STRUCTURAL SYSTEM SUCH AS OPENINGS, PENETRATIONS, MECHANICAL AND ELECTRICAL EQUIPMENT, ETC. SIZES AND LOCATIONS OF MECHANICAL AND OTHER EQUIPMENT THAT DIFFERS FROM THOSE SHOWN ON THE CONTRACT DRAWINGS SHALL BE REPORTED TO THE ARCHITECT/ENGINEER. . THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND BRACING AS REQUIRED FOR HIS METHOD OF ERECTION SHORING AND BRACING SHALL REMAIN IN PLACE UNTIL FINAL CONNECTIONS FOR THE PERMANENT MEMBERS ARE COMPLETED. THE BUILDING SHALL NOT BE CONSIDERED STABLE UNTIL ALL CONNECTIONS ARE
- COMPLETED. WALLS SHALL NOT BE CONSIDERED SELF SUPPORTING AND SHALL BE BRACED UNTIL THE FLOOR/ROOF SYSTEM IS COMPLETED 8. SITE OBSERVATIONS BY SKYLINE A/E/S/ INC'S FIELD REPRESENTATIVE SHALL NOT BE CONSTRUED AS
- APPROVAL OF CONSTRUCTION PROCEDURES NOR SPECIAL INSPECTION. 9. DETAILING AND SHOP DRAWING PRODUCTION FOR STRUCTURAL ELEMENTS WILL REQUIRE INFORMATION (INCLUDING DIMENSIONS) CONTAINED IN THE ARCHITECTURAL, STRUCTURAL AND/OR OTHER CONSULTANTS' DRAWINGS. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL AND OTHER CONSULTANT'S DRAWINGS. SOME DIMENSIONS AND ELEMENTS SUCH AS ELEVATIONS, DEPRESSIONS
- SLOPES, MECHANICAL HOUSEKEEPING PADS, ETC. MAY NOT BE SHOWN IN THE STRUCTURAL DRAWINGS. IO. REVIEW OF SHOP DRAWING SUBMITTALS BY SKYLINE A/E/S INC. IS FOR GENERAL COMPLIANCE ONLY AND IS NOT INTENDED FOR APPROVAL. THE SHOP DRAWING REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF COMPLETING THE PROJECT ACCORDING TO THE CONTRACT DOCUMENTS.
- II. SHOP DRAWINGS MADE FROM REPRODUCTIONS OF THE CONTRACT DRAWINGS WILL BE REJECTED UNLESS THE CONTRACTOR SIGNS A RELEASE AGREEMENT PRIOR TO THE SHOP DRAWINGS BEING REVIEWED.

BASIS OF DESIGN GOVERNING BUILDING CODE: 2003 INTERNATIONAL BUILDING CODE ROOF COLLATERAL LOAD. . . . . . O PSF 3. SEISMIC LOADS SEISMIC DESIGN CATAGORY. . . . SOILS SITE CLASS. . . . . . . . DEAD LOADS OF STRUCTURE PLUS 20% OF SNOW LOAD BASE SHEAR. .Vs = CsM = .108MIMPORTANCE FACTOR. . BUILDING TYPE. . .R = 5.5 4. WIND LOADS LOADS

### **FOUNDATION**

BASIC WIND VELOCITY.

EXPOSURE TYPE. . . . . . . .

- SOILS INVESTIGATION REPORT: NONE 2. SOIL BEARING PRESSURE: 1500 PSF - ASSUMED BY OWNER
- 3. FROST PROTECTION: 36 INCHES MINIMUM
- 4. CLEAR EXCAVATIONS OF DEBRIS AND LOOSE SOIL PRIOR TO PLACING FOOTINGS. ALL FOOTINGS SHALL BEAR ON UNDISTURBED NATURAL SUB-GRADE OR ENGINEERED COMPACTED FILL AS NOTED IN THESE

.90 MPH (3 SEC. GUST)

#### **EARTHWORK**

- CLEARING: THE ENTIRE BUILDING AREA SHALL BE SCRAPED TO REMOVE THE TOP 4 INCHES OF SOIL, INCLUDING ALL VEGETATION AND DEBRIS.
- 2. PROOF ROLLING: THE NATURAL UNDISTURBED SOIL BELOW ALL FOOTINGS SHALL BE PROOF ROLLED PRIOR TO PLACING CONCRETE. REMOVE ALL SOFT SPOTS AND REPLACE WITH COMPACTED STRUCTURAL FILL. 3. COMPACTED STRUCTURAL FILL: ALL FILL MATERIAL SHALL BE A WELL-GRADED GRANULAR MATERIAL WITH A
- MAXIMUM SIZE LESS THAN 4 INCHES AND WITH NOT MORE THAN 10 PERCENT PASSING A NO. 200 SIEVE. IT SHALL BE COMPACTED TO 95 PERCENT OF THE MAXIMUM LABORATORY DENSITY AS DETERMINED BY ASTM D 1557. ALL FILL SHALL BE TESTED. CONSULT THE PROJECT SPECIFICATIONS FOR FURTHER EARTHWORK REQUIREMENTS.

CONCRETE
CONCRETE
1. MATERIALS, UNLESS NOTED OTHERWISE:
A. NORMAL WEIGHT AGGREGATES
B. LIGHT WEIGHT AGGREGATES
LIGHTWEIGHT CONCRETE SHALL NOT EXCEED 110 POUNDS PER CUBIC FOOT AND SHALL BE MADE OF
LIGHTWEIGHT COURSE AGGREGATES AND A BLEND OF LIGHTWEIGHT AND NORMAL WEIGHT FINES.
C. REINFORCING STEEL ASTM 615 GRADE 60 (FY = 60 KSI), USE GRADE 40 (FY = 40 KSI) FOR FIELD
BENT DOWELS WITH SPACINGS INDICATED REDUCED BY 1/3.
D. DEFORMED BAR ANCHORS (DBA)
E. HEADED STUD ANCHORS (HSA) ASTM AIO8
F. ANCHOR BOLTS: ASTM A301 WITH ASTM A563 HEAVY HEX NUTS WITH HARDENED WASHERS
G. ADMIXTURES: AIR-ENTRAINING ADMIXTURES, COMPLY WITH ASTM C 260 (WHEN USED).
CALCIUM CHLORIDE SHALL NOT BE ADDED TO THE CONCRETE MIX.  H. NO ALUMINUM CONDUIT OR PRODUCT CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO
CONCRETE SHALL BE EMBEDDED IN CONCRETE.  2. COMPRESSIVE STRENGTHS OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS:
A. FOOTINGS
B. INTERIOR SLABS ON GRADE
C. FOUNDATION WALLS
D. COLUMNS
E. JOISTS, BEAMS AND SUSPENDED SLABS 4000 PSI
F. TILT UP WALL PANELS
G. NORMAL WEIGHT CONCRETE OVER STEEL DECK
H. ALL SITE CAST CONCRETE
3. 2-1/2" THICK (4" OVERALL) NORMAL WEIGHT CONCRETE SLAB SHALL BE POURED OVER THE STEEL
DECK. REINFORCE SLAB WITH 6" X 6" - WI.4/WI.4 WELDED WIRE FABRIC MINIMUM, UNLESS NOTED
OTHERWISE. WELDED WIRE FABRIC SHALL BE PLACED I" TO I-1/2" BELOW THE TOP OF THE SLAB
4. ONLY ONE GRADE OR TYPE OF CONCRETE SHALL BE POURED ON THE SITE AT ANY GIVEN TIME.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, DETAILING, CARE, PLACEMENT AND
REMOVAL OF ALL FORM WORK AND SHORES.
A. SUPPORTING FORMS AND SHORING SHALL NOT BE REMOVED UNTIL STRUCTURAL MEMBERS HAVE
ACQUIRED SUFFICIENT STRENGTH TO SAFELY SUPPORT THEIR OWN WEIGHT AND ANY CONSTRUCTION LOAD
TO WHICH THEY MAY BE SUBJECTED. IN NO CASE, HOWEVER, SHALL FORMS AND SHORING BE REMOVED IN
LESS THAN 24 HOURS AFTER CONCRETE PLACEMENT.
B. SUSPENDED SLABS SHALL BE RESUPPORTED AFTER FORM REMOVAL UNTIL CONCRETE REACHES ITS 28
DAY SPECIFIED COMPRESSIVE STRENGTH.
6. REINFORCEMENT SHALL HAVE THE FOLLOWING CONCRETE COVER:
CAST-IN-PLACE CONCRETE:
A. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH
B. FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 THRU #18 BARS
#5 AND SMALLER BARS
C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
SLAB5, WALL5, JOISTS; #11 BARS AND SMALLER
BEAMS, COLUMNS: PRIMARY REINF., TIES, STIRRUPS, SPIRALS
CONCRETE TILT-UP PANELS (MANUFACTURED UNDER PLANT CONTROLLED CONDITIONS)
#8 BARS AND SMALLER
#4 T

PRE-CAST CONCRETE: A. CONCRETE EXPOSED TO EARTH OR WEATHER: WALL PANELS: #11 BARS AND SMALLER. OTHER MEMBERS: B. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: SLABS, WALLS, JOISTS: BEAMS, COLUMNS: PRIMARY REINFORCEMENT. TIES, STIRRUPS, SPIRALS. CONSTRUCTION JOINTS AND CONTROL JOINTS: A. PROVIDE A FORMED AND BEVELED 2 X 4 X CONTINUOUS KEYWAY IN ALL HORIZONTAL AND VERTICAL

CONSTRUCTION JOINTS INCLUDING BETWEEN TOP OF FOOTING AND FOUNDATION WALLS. IN ADDITION, ALL

SLAB IS NO MORE THAN 1.25:1. CONTROL JOINTS SHALL BE COMPLETED WITHIN 12 HOURS OF CONCRETE

PLACEMENT. CONTROL JOINTS MAY BE INSTALLED BY: SAW OUT A DEPTH OF 1/4 THE THICKNESS OF THE

THICKNESS IN ANY DIRECTION FOR REINFORCED SLABS, UNLESS NOTED OTHERWISE. CONSTRUCTION JOINTS

JOINTS SHALL BE INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY 1/4 INCH.

; INSTALL CONSTRUCTION OR CONTROL JOINTS IN SLABS ON GRADE AT A SPACING NOT TO EXCEED 30 TIMES THE SLAB THICKNESS IN ANY DIRECTION FOR UNREINFORCED SLABS AND 75 TIMES THE SLAB

B. CONTROL JOINTS SHALL BE INSTALLED IN SLABS ON GRADE SO THE LENGTH TO WIDTH RATIO OF THE

SLAB TOOLED JOINTS A DEPTH OF 1/4 THE THICKNESS OF THE SLAB

SHALL NOT EXCEED A DISTANCE OF 125'-O" O.C. IN ANY DIRECTION.

### **CONCRETE CONTINUED**

- 8. CONSTRUCTION A. USE CHAIRS OR OTHER SUPPORT DEVICES RECOMMENDED BY THE CRSI TO SUPPORT AND TIE REINFORCEMENT BARS AND WAF PRIOR TO PLACING CONCRETE. WAF SHALL BE CONTINUOUSLY SUPPORTED AT 36" O.C. MAXIMUM. REINFORCING STEEL FOR SLABS ON GRADE SHALL BE ADEQUATELY SUPPORTED ON PRECAST CONCRETE UNITS. LIFTING THE REINFORCING OFF THE GRADE DURING PLACEMENT OF CONCRETE IS NOT PERMITTED
- B. CONTRACTOR SHALL COORDINATE PLACEMENT OF ALL OPENINGS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS, INSERTS AND OTHER EMBEDDED ITEMS PRIOR TO CONCRETE PLACEMENT C. ALL EMBEDS AND DOWELS SHALL BE SECURELY TIED TO FORM WORK OR TO ADJACENT REINFORCING
- PRIOR TO THE PLACEMENT OF CONCRETE. D. NO PIPES, DUCTS, SLEEVES, ETC SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. PENETRATIONS THROUGH WALLS, WHEN APPROVED, SHALL BE BUILT INTO THE WALL PRIOR TO CONCRETE PLACEMENT. PENETRATIONS WILL NOT BE ALLOWED IN FOOTINGS OR GRADE BEAMS UNLESS DETAILED. PIPING SHALL BE ROUTED AROUND THESE FLEMENTS AND FOOTINGS STEPPED TO AVOID PIPING
- E. REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY SHOWN ON DRAWINGS. IN SUCH CASES, USE ONLY AWS STANDARDS. DO NOT SUBSTITUTE REINFORCING BARS FOR DBAS OR HSAS. 9. DETAILING:
- A. LAP LENGTHS SHALL BE AS FOLLOWS: FOR F'C = 3000 PSI #6 AND SMALLER 44 BD.
- #7 AND LARGER 55 BD FOR F'C = 4000 PSI #6 AND SMALLER 38 BD
- #7 AND LARGER 47 BD B. AT JOINTS PROVIDE REINFORCING DOWELS TO MATCH THE MEMBER REINFORCING, UNLESS NOTED
- C. AT ALL DISCONTINUOUS CONTROL OR CONSTRUCTION SLAB ON GRADE JOINTS, PROVIDE 2 #4 X 48
- D. PROVIDE CORNER BARS AT INTERSECTING WALL CORNERS USING THE SAME BAR SIZE AND SPACING AS THE HORIZONTAL WALL REINFORCING.
- E. ALL VERTICAL REINFORCING SHALL BE DOWELED TO FOOTINGS, OR TO THE STRUCTURE BELOW WITH THE SAME SIZE AND SPACING AS THE VERTICAL REINFORCING FOR THE ELEMENT ABOVE. DOWELS EXTENDING INTO FOOTINGS SHALL TERMINATE WITH A 90 DEGREE STANDARD HOOK AND SHALL EXTEND TO WITHIN 4 OF THE BOTTOM OF THE FOOTING. FOOTING DOWELS (#8 BARS AND SMALLER) WITH HOOKS NEED NOT EXTEND MORE THAN 20" INTO FOOTINGS
- F. HORIZONTAL WALL REINFORCING SHALL TERMINATE AT ENDS OF WALLS AND OPENINGS INTO THE FAR END OF THE JAMB COLUMN WITH A 90 DEGREE STANDARD HOOK PLUS A 6 BAR DIAMETER EXTENSION. HORIZONTAL WALL REINFORCING SHALL BE CONTINUOUS THROUGH CONSTRUCTION AND CONTROL JOINTS. SPLICES IN HORIZONTAL REINFORCEMENT SHALL BE STAGGERED. SPLICES IN TWO CURTAINS WHERE USED SHALL NOT OCCUR IN THE SAME LOCATION.
- G. PROVIDE 2- #5 BARS AROUND ALL OPENINGS LARGER THAN 8 INCHES IN ANY DIRECTION AND SMALLER THAN 36 INCHES, UNLESS NOTED OTHERWISE. EXTEND REINFORCING BARS A MINIMUM OF 24" BEYOND THE CORNER OF THE OPENINGS. WHERE 24" IS NOT AVAILABLE, EXTEND BARS AS FAR BEYOND THE OPENING AS POSSIBLE AND TERMINATE THEM WITH A 90 STANDARD HOOK. FOR LARGER UNREINFORCED OPENINGS
- H. PROVIDE 2-#5 X 4'-O" DIAGONAL BARS (OR I #1 X 4'-O" BAR IN IO" WALLS AND THINNER) AT THE CORNERS OF ALL OPENINGS. DIAGONAL BARS SHALL BE CENTERED ON THE CORNER OF THE OPENING ALL RECESSES IN CONCRETE WALLS THAT INTERRUPT REINFORCING STEEL SHALL BE REINFORCED THE SAME

### **MASONRY**

- MATERIALS, UNLESS NOTED OTHERWISE: A. CONCRETE MASONRY UNITS (CMU):
- LIGHTWEIGHT GRADE N, TYPE I (MINIMUM UNIT STRENGTH OF 2100 PSI). FM = 1800 PSI B. HOLLOW CLAY UNITS: HOLLOW BRICK, GRADE I (MINIMUM UNIT STRENGTH OF 3,000 PSI) FM = 1800 PSI
- C. SOLID CLAY UNITS: GRADE SW (MINIMUM UNIT STRENGTH OF 3000 PSI). F'M = 1800 PSI) D. MORTAR: USE TYPE "S" (1800 PSI MINIMUM COMPRESSIVE STRENGTH FOR FIELD SPECIMENS)
- E. GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.
- G. DEFORMED BAR ANCHORS (DBA). . . ASTM A496
- H. HEADED STUD ANCHORS (HSA). . . . ASTM AIO8 .ASTM A301 WITH ASTM A563 HEAVY HEX NUTS HARDENED WASHERS 2. REINFORCEMENT SHALL HAVE THE FOLLOWING COVER:
- A. JOINT REINFORCEMENT SHALL HAVE NOT LESS THAN 5/8" MORTAR COVERAGE FROM THE EXPOSED FACE. B. OTHER REINFORCEMENT SHALL HAVE A MINIMUM COVERAGE OF ONE BAR DIAMETER OVER ALL THE BARS, BUT NOT LESS THAN 3/4". WHEN MASONRY IS EXPOSED TO SOIL, MINIMUM COVERAGE SHALL BE 1 1/2".
- 3 CONSTRUCTION REQUIREMENTS A. ALL UNITS SHALL BE LAID WITH FULL MORTAR BEDS ON THE FACE SHELLS. ALL HEAD JOINTS SHALL BE FILLED SOLIDLY WITH MORTAR FOR A DISTANCE IN FROM THE FACE OF THE UNITS NOT LESS THAN THE THICKNESS OF THE LONGITUDINAL FACE SHELLS. CELLS WHICH ARE TO BE GROUTED SHALL HAVE FULL HEAD
- B. MASONRY WALLS, BEAMS AND COLUMNS SHALL BE CONSTRUCTED WITH RUNNING BOND, UNLESS NOTED
- C. ALL CELLS CONTAINING REINFORCEMENT, EMBEDS, ANCHOR BOLTS, ETG. SHALL BE FILLED SOLID WITH GROUT. GROUT SHALL BE PLACED BY MECHANICAL VIBRATION DURING PLACING AND REVIBRATED AFTER EXCESS MOISTURE HAS BEEN ABSORBED BUT BEFORE WORKABILITY IS LOST. PUDDLING OF GROUT IS NOT
- D. WHERE WALLS ARE NOT GROUTED SOLID, EACH GROUT POUR SHALL TERMINATE FLUSH WITH THE TOP OF THE UPPERMOST UNIT EXCEPT AT CELLS WITH VERTICAL REINFORCING WHERE THE GROUT SHALL BE I-I/2 INCHES BELOW TOP OF UNIT TO PROVIDE CONSTRUCTION KEY.
- GROUT POURS SHALL BE LIMITED TO 4'-O" UNLESS HIGH LIFT GROUTING PROCEDURES ARE FOLLOWED F. VERTICAL CELLS TO BE FILLED WITH GROUT SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR, UNOBSTRUCTED VERTICAL CELL MEASURING NOT LESS THAN 2 INCHES BY 3 INCHES. ALL STEEL REINFORCEMENT SHALL BE SECURED AGAINST DISPLACEMENT PRIOR TO GROUTING BY WIRE POSITIONERS OR OTHER SUITABLE DEVICES AT INTERVALS NOT EXCEEDING 200 BAR DIAMETERS OR IO FEET MAXIMUM, OR AT BAR SPLICE LOCATIONS. VERTICAL REINFORCING SHALL BE LOCATED AT THE CENTER OF THE WALL UNLESS NOTED OTHERWISE
- G. REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY SHOWN ON DRAWINGS. IN SUCH CASES, USE ONLY AWS STANDARDS. DO NOT SUBSTITUTE REINFORCING BARS FOR DBAS OR HSAS.
- H. CONTROL JOINTS: SPACING SHALL NOT EXCEED 40'-O". SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS. I. GROUT ALL BEAM AND JOIST POCKETS SOLID AFTER INSTALLATION OF BEAMS AND JOISTS. J. EMBED CHANNELS AND PLATES SHALL BE PLACED SO AS TO CREATE A FLUSH SURFACE WITH THE FACE
- K. ANCHOR BOLTS AND HEADED STUD ANCHORS SHALL BE SET IN A GROUTED CELL. ANCHOR BOLTS AND HEADED STUD ANCHORS SHALL HAVE I" GROUT SURROUNDING THE SHANK AT ITS PENETRATION. GROUT SHALL BE FLUSH WITH THE FACE OR TOP OF THE MASONRY.
- A. LAP ALL MASONRY REINFORCING A MINIMUM OF 48 BAR DIAMETERS WITH A MINIMUM LAP OF 24". JOINT
- REINFORCEMENT SHALL LAP A MINIMUM OF 6". B. ALL VERTICAL REINFORCING SHALL BE DOWELED TO THE FOUNDATION WALL, FOOTING (STRUCTURE BELOW) AND TO THE STRUCTURE BELOW WITH THE SAME SIZE DOWEL, SPACING (AND IN THE SAME CORE) AS THE VERTICAL WALL REINFORCING ABOVE.
- C. CORNER BARS: HORIZONTAL REINFORCEMENT SHALL BE CONTINUOUS AT ALL CORNERS AND AT INTERSECTING WALLS. PROVIDE CORNER BARS WITH THE REQUIRED LAP SPLICE LENGTH.
- D. WALL OPENINGS 24" WIDE AND WIDER: PROVIDE REINFORGED MASONRY LINTELS PER MASONRY LINTEL SCHEDULE OVER THE TOP OF, AND 2-#5 BARS, IN GROUTED SPACES, ON ALL SIDES AND ADJACENT TO EVERY UNSCHEDULED OPENING, UNLESS NOTED OTHERWISE. BARS FOR ALL OPENINGS SHALL EXTEND A MINIMUM OF 48 BAR DIAMETERS BEYOND THE CORNERS OF THE OPENING. VERTICAL BARS SHALL EXTEND FROM FLOOR LEVEL BELOW TO THE FLOOR, OR ROOF, LEVEL ABOVE. WHERE A 48 BAR DIAMETER EXTENSION IS NOT POSSIBLE, EXTEND BARS AS FAR BEYOND THE OPENING AS POSSIBLE AND TERMINATE THEM WITH A 90
- DEGREE STANDARD ACI HOOK. E. HORIZONTAL WALL REINFORCING SHALL BE CONTINUOUS THROUGH JOINING CONCRETE WALLS, MASONRY WALLS, COLUMNS, AND PILASTERS. PROVIDE A KEY BETWEEN THE WALL AND THE COLUMN OR PILASTER. HORIZONTAL WALL REINFORCING SHALL BE PLACED INSIDE THE COLUMN VERTICAL REINFORCING. F. HORIZONTAL WALL REINFORCING SHALL TERMINATE AT EACH SIDE OF CONTROL JOINTS EXCEPT AT FLOOR
- AND ROOF LEVEL BEAMS AND AT TOP OF PARAPETS. G. ALL MASONRY COLUMN TIES SHALL TERMINATE WITH 135 DEGREE HOOKS PLUS A 6 BAR DIAMETER EXTENSION (4" MINIMUM). 5. MASONRY STRENGTH VERIFICATION:
- A. MASONRY STRENGTH, FM SHALL BE VERIFIED USING THE "UNIT STRENGTH METHOD" PER ACI 530-99/ASCE 5-99/TMS 402-99 TABLE 1.14.1.1 AND AS DESCRIBED BELOW: I. PRIOR TO CONSTRUCTION, A LETTER OF STRENGTH CERTIFICATION FROM THE SUPPLIERS OF THE MASONRY UNITS AND GROUT SHALL BE SUBMITTED.

II DURING CONSTRUCTION, THE GROUT AND MORTAR SHALL BE TESTED FOR EVERY 5,000 SQUARE FEET OF

### WOOD

MASONRY CONSTRUCTED.

- A. GLU-LAM BEAMS SHALL BE DOUGLAS-FIR COMBINATION NUMBER 24F-V4 EXCEPT CANTILEVERED AND CONTINUOUS BEAMS SHALL BE COMBINATION NUMBER 24F-V8.
- B. FRAMING LUMBER SHALL BE  $\sharp$  2 DOUGLAS FIR-LARCH OR BETTER UNLESS NOTED OTHERWISE. C. WOOD SHEATHING SHALL BE APA STRUCTURAL #2 OR OSB, INTERIOR GRADE WITH EXTERIOR GLUE, SPAN INDEX RATIO, UNLESS NOTED OTHERWISE: 24/0 WALLS (7/16 INCH THICK)
- 32/16 FLOORS (3/4 INCH THICK) 48/24 ROOF (5/8 INCH THICK) PLACE FACE GRAIN OF SHEATHING PERPENDICULAR TO ROOF JOISTS AND STUDS. STAGGER 4'-O" SIDE
- JOINTS. BLOCK ALL EDGES WITH 2X4 MINIMUM FLAT. D. NAILS: STANDARD COMMON WITH THE FOLLOWING PROPERTIES: NAIL SIZE SHANK DIAMETER MIN. PENETRATION INTO SUPPORT MEMBER
  - 0.113" 0.131" 1.50" 0.148" 1.63"
- NAILING MACHINES OR FASTENERS OTHER THAN COMMON NAILS ARE NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER.
- E. BOLTS SHALL BE ASTM A307 WITH ASTM A563 HEAVY HEX NUTS AND HARDENED WASHERS, GRADE A, UNLESS NOTED OTHERWISE.
- F. ALL LAMINATED VENEER LUMBER (LVL) SHALL BE FURNISHED BY TRUS-JOIST CORPORATION OR APPROVED EQUAL.
- G. ALL PREFABRICATED WOOD JOISTS SHALL BE TJI AS MANUFACTURED BY TRUS JOIST MACMILLAN CORP. OR BCI AS MANUFACTURED BY BOISE CASCADE CORP. ALL REQUIRED BLOCKING BRIDGING AND BRACING SHALL BE PROVIDED BY JOIST MANUFACTURER AND INSTALLED BY CONTRACTOR. ALL PENETRATIONS THROUGH THE JOISTS SHALL BE DONE PER MANUFACTURERS RECOMMENDATIONS AND REQUIREMENTS.

### WOOD

- 2. ALL WOOD IN CONTACT WITH CONCRETE, MASONRY OR SOIL SHALL BE PRESSURE TREATED OR
- REDWOOD. 3. GENERAL FRAMING AND CARPENTRY SHALL BE CONNECTED AS PER IBC TABLE 2304.9.1, "MINIMUM
- NAILING SCHEDULE", UNLESS NOTED OTHERWISE. 4. ALL FRAMING ANCHORS, POST CAPS, HOLD DOWNS, COLUMN BASES, ETC. SHALL BE PROVIDED BY
- SIMPSON STRONG-TIE OR APPROVED EQUAL 5. PROVIDE SOLID SHAPED BLOCKING AT LEAST 2 IN. (NOMINAL) THICK AND FULL DEPTH OF JOIST AT ENDS AND AT EACH SUPPORT OF JOIST. PROVIDE APPROVED BRIDGING AT A 8'-O" O.C. MAXIMUM BETWEEN JOIST END SUPPORTS. SOLID BLOCKING BETWEEN JOISTS SHALL BE NAILED TO THE WOOD PLATE AT THE TOP OF THE WALL WITH ONE SIMPSON "A35" FRAMING ANCHOR PER EACH PIECE OF BLOCKING. FILL ALL HOLES IN
- THE FRAMING ANCHORS WITH 8-D X 1-1/2" NAILS (12 NAILS PER A35). 6. BUILT-UP BEAMS OF 2X MEMBER 12 IN. OR LESS IN DEPTH SHALL BE SPIKED TOGETHER WITH NOT LESS THAN 16-D SPIKES AT TWELVE-INCH (12 IN) CENTERS, STAGGERED. IF THE DEPTH OF BEAM IS MORE THAN TWELVE INCHES (12 IN), THE MEMBERS SHALL BE CONNECTED TOGETHER WITH 1/2" DIAMETER BOLTS @ 24 IN. O.C. STAGGERED. BOLTS SHALL BE PLACED 1/4 THE DEPTH OF THE MEMBER FROM THE TOP AND BOTTOM
- 7. ALL WALLS SHALL HAVE A MINIMUM OF TWO TOP PLATES. SPLICES IN TOP PLATES SHALL BE STAGGERED A MINIMUM OF FOUR FEET FROM THE NEAREST SPLICE IN ADJOINING TOP PLATE.
- 8. PROVIDE A DOUBLE JOIST UNDER PARALLEL PARTITIONS.

### PRE-FABRICATED METAL PLATE WOOD TRUSSES

- THE PREFABRICATED METAL PLATE WOOD TRUSSES SHALL BE DESIGNED, SIGNED, AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE SAME STATE AS THE PROJECT LOCATION. THEY SHALL BE DESIGNED TO SUPPORT THE CONCENTRATED AND OTHER DISTRIBUTED LOADS AS SHOWN ON THE FRAMING PLANS IN ADDITION TO THE FOLLOWING UNIFORM LOADS:
- DEAD LOAD (TOP CHORD) = 10 PSF DEAD LOAD (BOTTOM CHORD) = 10 PSF LIVE LOAD (TOP CHORD) = 50 PSF
  - TO PSF TOTAL LOAD
- CORRELATE THE DESIGN WITH ALL MECHANICAL EQUIPMENT, FIRE SPRINKLING SYSTEMS AND HANGING WALLS SUPPORTED BY THE TRUSSES. PROVIDE EXTRA TRUSSES WHERE REQUIRED. 2. DESIGN ALL WOOD TRUSSES AND BEARING ATTACHMENTS FOR WIND UPLIFT. ASSUME A DEAD LOAD OF
- 15 PSF TO RESIST UPLIFT. 3. LIMIT MAXIMUM STRESS INCREASE TO 15% FOR SNOW LOAD AND 33% FOR WIND LOAD. 4. ALL TRUSS TO TRUSS CONNECTIONS SHALL BE DESIGNED AND PROVIDED BY THE TRUSS
- MANUFACTURER. 5. DESIGN, HANDLING, ERECTION, AND PERMANENT BRACING OF METAL PLATE CONNECTED WOOD TRUSSES SHALL BE IN ACCORDANCE WITH ANSI/TPI-I, NATIONAL DESIGN STANDARD FOR METAL PLATED CONNECTED WOOD TRUSS CONSTRUCTION.
- 6. STEEL CONNECTOR PLATES: ALL STEEL GUSSET PLATES SHALL BE GALVANIZED AND SHALL BE APPROVED BY THE "RESEARCH COMMITTEE FOR THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS". SUBMIT A COPY OF THE ICBO
- REPORT FOR THE CONNECTOR PLATE USED. VALUES ESTABLISHED BY THIS COMMITTEE MUST BE INDICATED
- A. THE MINIMUM SIZE FOR ANY CONNECTOR SHALL BE 8 SQUARE INCHES. B. ALL STEEL GUSSET PLATES SHALL BE LOCATED ON THE JOINT AS THE STRESSES REQUIRE AND SHALL PROVIDE A MINIMUM BITE OF 2 1/2" LENGTH ON ALL TENSION MEMBERS.
- C. PLATES SHALL BE PRESSED OR ROLLED INTO MEMBER TO OBTAIN FULL PENETRATION WITHOUT CRUSHING THE OUTER SURFACES OF WOOD. D. ALL STEEL PLATE DIMENSIONS SHALL BE INCREASED BY 10% ABOVE THAT REQUIRED BY ANALYSIS. STRESS INCREASES FOR STEEL CONNECTOR PLATE VALUES FOR DURATION OF LOAD
- ARE NOT ALLOWED 1. NO WANE, KNOTS, SKIPS, OR OTHER DEFECTS SHALL OCCUR IN THE PLATED CONTACT AREA OR SCARFED AREA OF WEB MEMBERS, PLATES SHALL BE CENTERED WITH ONE REQUIRED EACH SIDE OF WOOD
- 8. THE TRUSSES SHALL BE HANDLED AND STORED IN A MANNER TO PREVENT MOISTURE FROM BEING ABSORBED BY THE WOOD.
- 9. REQUIREMENTS FOR TRUSS STABILITY AND ERECTION SHALL COMPLY WITH THE TRUSS PLATE INSTITUTE PUBLICATIONS ENTITLED "COMMENTARY AND RECOMMENDATIONS FOR BRACING WOOD TRUSSES" AND "COMMENTARY AND RECOMMENDATIONS FOR HANDLING AND ERECTING WOOD TRUSSES." THE CONTRACTOR SHALL HAVE COPIES OF THESE PUBLICATIONS ON SITE AND SHALL BE FAMILIAR WITH THEIR CONTENTS. IO. SHOP DRAWINGS: COMPLETE CALCULATIONS AND SHOP DRAWINGS INDICATING ALL MEMBER FORCES,
- STRESSES, DURATION FACTORS, LUMBER GRADES, DIMENSIONS, TRUSS TO TRUSS CONNECTIONS, STEEL TRUSS PLATE SIZES AND LOCATIONS SHALL BE SUBMITTED AND REVIEWED BY THE ENGINEER BEFORE FABRICATION. EACH CONNECTOR SHALL BE DIMENSIONED ON THE SHOP DRAWINGS AS TO ITS EXACT

### SPECIAL INSPECTIONS

SPECIAL INSPECTION, AS REQUIRED BY TABLE 1704.4 OF THE IBC, SHALL BE PROVIDED BY AN INDEPENDENT AGENCY EMPLOYED BY THE OWNER UNLESS WAIVED BY THE BUILDING OFFICIAL. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE REQUIRED INSPECTIONS. ITEMS REQUIRING SPECIAL INSPECTION

I. CONCRETE PLACEMENT

DIAPHRAGM

MARK

PANEL

THICKNESS

**WOOD DIAPHRAGM NOTES:** 

. ALL SHEATHING SHALL BE APA

JOINTS W/ 2 X 4 MINIMUM (FLAT).

RATED EXPOSURE 1.

REQUIREMENTS.

COMMON NAIL

SPACING LEGEND:

C = INTERMEDIATE PANEL

A = CONTINUOUS PANEL EDGES

B = ALL OTHER PANEL EDGES.

AND DIAPHRAGM BOUNDARIES.

SUPPORTS (IN FIELD NAILING)

2. BLOCK ALL NOTED PANEL

3. SEE GENERAL STRUCTURAL

NOTES FOR ALL OTHER

ed*g*es

5/8" | UNBLOCKED | 8d - 4"

- 2. BOLTS INSTALLED IN CONCRETE 3. CONCRETE REINFORCING STEEL PLACEMENT
- 4. STRUCTURAL MASONRY AS REQUIRED BY THE CONTRACT DOCUMENTS. SEE MASONRY SECTION OF THE GENERAL STRUCTURAL NOTES AND MASONRY SCHEDULES FOR ADDITIONAL INFORMATION. SPECIAL INSPECTION SHALL BE PROVIDED DURING PREPARATION AND TAKING OF ANY REQUIRED PRISMS OR TEST SPECIMENS, PLACING OF ALL MASONRY UNITS, PLACEMENT OF REINFORCING, INSPECTION OF GROUT SPACE, IMMEDIATELY PRIOR TO CLOSING OF CLEANOUTS AND DURING ALL GROUTING OPERATIONS.

WOOD SHEATHING DIAPHRAGM SCHEDULE

COMMON NAIL SPACING

8d - 6"

<del>-: :</del>

COMMENTS

**ROOF** 

8d - 12"

DIAPHRAGM NAILING DIAGRAM

• • •

#### CONCRETE FOOTING SCHEDULE DIMENSIONS TRANSVERSE REINF. LENGTHWISE REINF. MARK | WIDTH | LENGTH | THICK, | QTY. | SIZE | LENGTH | SPCG. | QTY. | SIZE | LENGTH | SPCG. -- | -- | 2 | #4 | CONT. | EQ. CONT. 10" FC2.0 | 1'-8" -- | 2 | #4 | *CO*NT. | EQ. CONT. 12"

#### FOOTING SCHEDULE NOTES:

- I. PLACE ALL FOOTING REINFORCING IN BOTTOM OF FOOTING WITH 3" CLEAR CONCRETE COVER, UNLESS NOTED
- 2. TOP REINFORCING, WHERE SPECIFIED, SHALL BE PLACED IN THE TOP OF THE FOOTING WITH 2" MINIMUM CONCRETE COVER.
- 3. IF FOOTINGS ARE EARTH FORMED, FOOTING WIDTH AND LENGTH SHALL BE 4" WIDER AND LONGER THAN
- 4. SEE GENERAL STRUCTURAL NOTES FOR ALL OTHER REQUIREMENTS.

2. DO NOT SOLID GROUT WALLS UNLESS NOTED OTHERWISE.

VERTICAL

(ONE)- #5 BAR

		CONCRET	TE FOUNDA	TION WALL	SCHED	OULE
WALL	THICKNESS		REINFORCING	EINFORCING		REMARKS
MARK		VERTICAL	HORIZONTAL	TOP & BOTTOM	TYPE	
(CFW-I)	8"	#4 BAR5 @ 18" O.C.	#4 BARS @ 12" O.C. or #5 BARS @ 18" O.C.	(one) #5 BAR	А	
1. SEE G REQUI	ENERAL STRU	CHEDULE NOTES  JOTURAL NOTES FOR  NOTED IN THE CONC SCHEDULE.	ALL OTHER	WALL REIN	HORI	ZONTAL ZONTAL
CONC SHALL NEAR	RETE RETIAN . HAVE TWO ( EACH FACE (	HE CENTER OF THE W ING WALLS), WALLS T CURTINS OF REINFOR OF THE WALL, SEE GE S FOR CLEARANCE)	HICKER THAN IO" CEMENT (PLACED	4	· VEF	FORCING TO THE PROPERTY OF THE
	R TO RETAININ OCCURS.	NG WALL DETAIL WHE	N A RETAINING	WALL TY	PE "A"	WALL TYPE "B"

NALL	THICKNESS	MATERIALS		COMMENTS		
MARK			VERTICAL	HORIZONTAL	JOINTS	
MW-I)	8"	8"x8"x16"	#5 BARS @ 32" O.C.	#5 BARS @ 48" O.C.	-	

3. HORIZONTAL WALL REINFORGING SHALL BE PLACED BETWEEN VERTICAL MASONRY COLUMN REINFORGING BARS.

4. HORIZONTAL WALL REINFORCING SHALL CONTINUE THRU MASONRY LINTELS, WHERE BOTH HORIZONTAL WALL

REINFORCING AND LINTEL REINFORCING OCCUR IN THE SAME COURSE, USE THE LARGER REINFORCING.

	5. SEE GENERAL STRUCTURAL NOTES FOR ALL OTHER REQUIREMENTS.							
•								
	MASONRY COLUMN SCHEDULE							
	COLUMN	COLUMN SIZE	REINFORCING	COMMENTS				

TIES

#4 TIES @ 8" O.C.

### MASONRY COLUMN NOTES:

8"x8"

MARK

MC-I

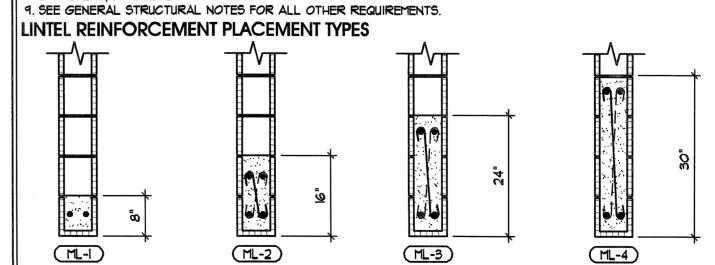
- . THE CENTERLINE OF VERTICAL BARS SHALL BE LOCATED 2 1/2" FROM THE FACE OF THE MASONRY. HORIZONTAL WALL REINFORCEMENT SHALL BE LOCATED TO THE INSIDE OF VERTICAL BARS.
- . UNLESS NOTED OTHERWISE, VERTICAL REINFORCING AND TIES SHALL EXTEND TO FULL WALL HEIGHT 3. VERTICAL MASONRY COLUMN REINFORCING SHALL EXTEND INTO THE FOOTING AND TERMINATE WITH A STANDARD 90° HOOK. FOR CONCRETE FOUNDATION WALLS OVER 5'-O" TALL, VERTICAL COLUMN REINFORCING REINFORCING SHALL DOWEL 4'-O" MINIMUM INTO THE FOUNDATION WALL.
- 4. IN CONCRETE FOUNDATION WALLS, VERTICAL MASONRY COLUMN REINFORCING SHALL BE TIED WITH #3 TIES @ 8" O.C. 5. SEE GENERAL STRUCTURAL NOTES FOR ALL OTHER REQUIREMENTS.

MASONRY LINTEL SCHEDULE					
LINTEL	LINTEL DEPTH	LINTEL SPAN	REINFO	RCING	COMMENTS
MARK		MAXIMUM	HORIZONTAL	STIRRUPS	
ML-I	8"	3'-4"	(2) #5 BAR CONT		

### MASONRY LINTEL NOTES:

OPENING, PROVIDE 90° STANDARD HOOK.

- . LINTEL WIDTH AND MATERIAL TYPE SHALL BE THE SAME AS THE WALL IN WHICH THE LINTEL IS
- 2. GROUT MASONRY LINTELS MONOLITHICALLY WITH THE SUPPORT WALL OR COLUMN AT EACH END. 3. MASONRY LINTELS ML-1 THRU ML-4 SHALL BE USED OVER OPENINGS IN MASONRY WALLS WHEN A SPECIFIC MASONRY LINTEL IS NOT OTHERWISE SPECIFIED. WHEN A LINTEL IS SPECIFIED ON THE PLANS,
- THE MAXIMUM SPAN AS NOTED IN THIS SCHEDULE SHALL NOT APPLY. CONSULT THE STRUCTURAL ENGINEER FOR LINTELS NOT SPECIFIED ON THE PLANS WHICH HAVE A SPAN GREATER THAN 10'-O". 4. MASONRY LINTELS ML-1 THRU ML-4 SHALL NOT BE LOCATED DIRECTLY BELOW FLOOR OR ROOF BEAMS OR GIRDERS UNLESS NOTED OTHERWISE ON THE PLANS. JOISTS SHALL NOT BEAR ON ANY LINTEL LESS THAN 16" DEEP. CONSULT THE STRUCTURAL ENGINEER FOR LINTELS NOT SHOWN ON THE
- PLANS WHICH ARE LOCATED DIRECTLY BELOW FLOOR OR ROOF BEAMS OR GIRDERS. 5. EXTEND ALL HORIZONTAL REINFORCING 48 BAR DIAMETERS MINIMUM BEYOND THE EDGE OF ALL OPENINGS. IF HORIZONTAL REINFORCING CANNOT EXTEND 48 BAR DIAMETERS BEYOND EDGE OF
- S. SPLICE TOP BARS AT MIDSPAN OF LINTEL ONLY AND BOTTOM BARS OVER SUPPORTS ONLY. 1. HORIZONTAL WALL REINFORCING SHALL CONTINUE THRU MASONRY LINTELS. WHERE BOTH HORIZONTAL WALL REINFORCING AND LINTEL REINFORCING OCCUR IN THE SAME COURSE, USE THE LARGER REINFORCING.
- 8. DOWEL VERTICAL REINFORCING OF WALL ABOVE LINTEL INTO THE FULL DEPTH OF LINTEL OR 48 BAR DIAMETERS, WHICHEVER IS LESS.



REV#:	REVISION DESCRIPTION:	DATE:



This document and the ideas incorporated herein, as an Instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted

to the fullest extent of the law.

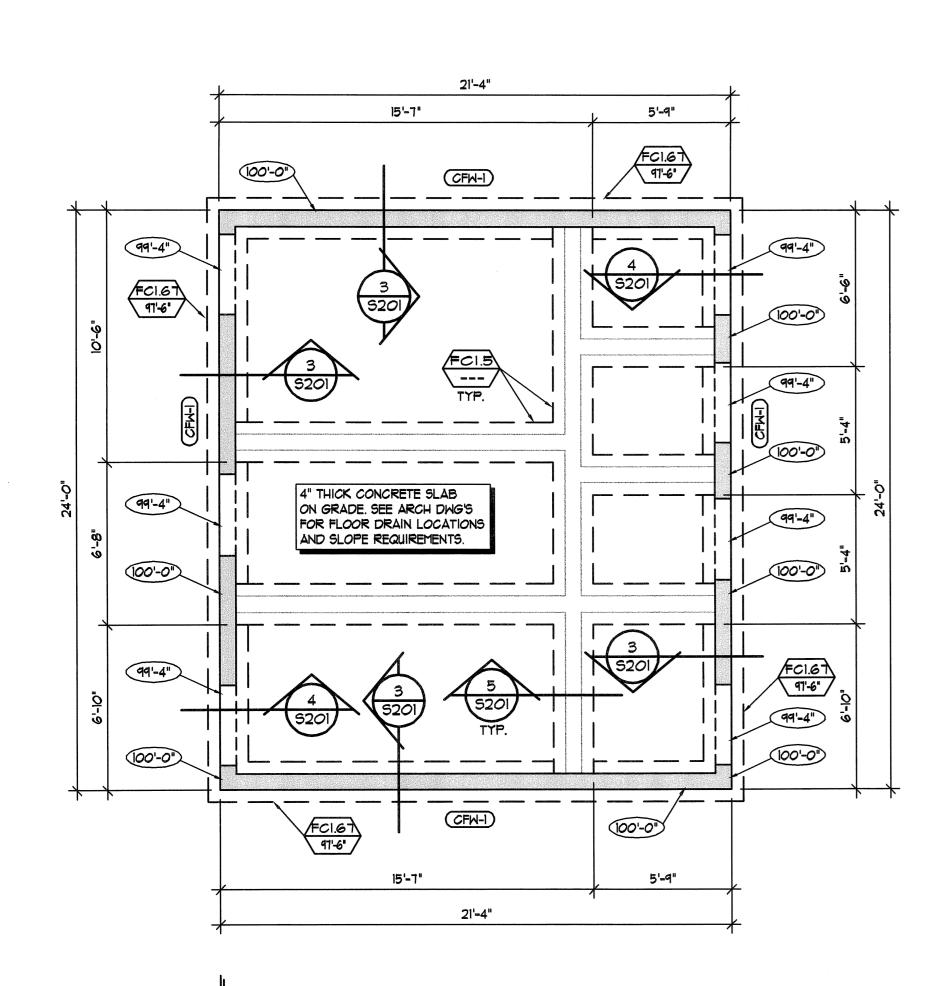
Copyright © 2006 SKYLINE A/E/S, INC

Professional Seal: KNIGHTON

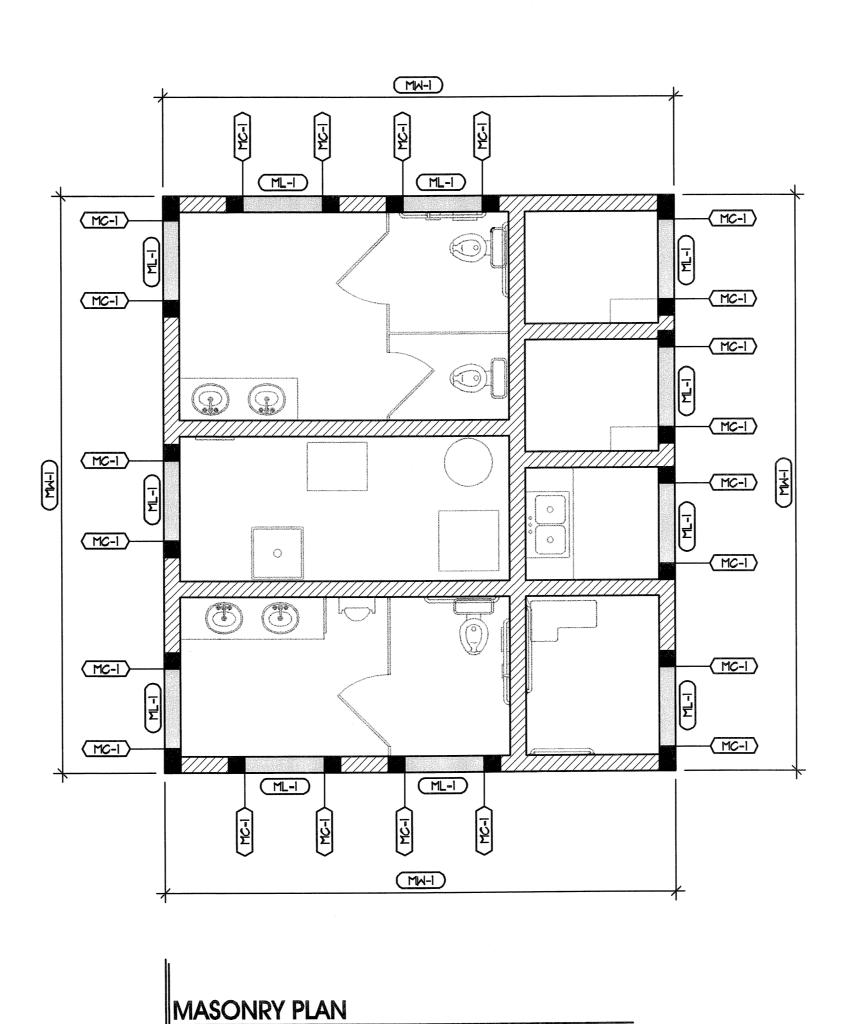
**BIG CREEK ICAMPGROUND RESTROOMS** 

GENERAL STRUCTURAL **NOTES AND SCHEDULES** 

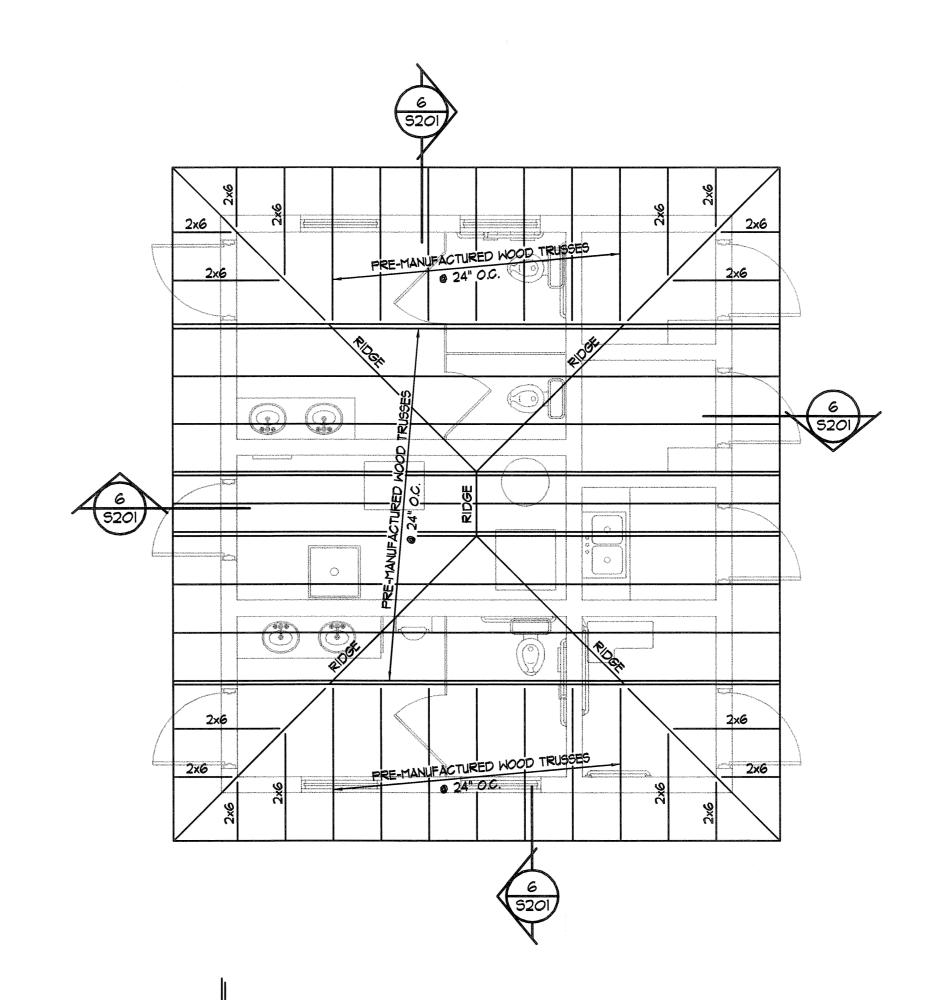
Drawn By:	Project Number:	DFCM Project Number:
T. Ekins	06-083	06190510
Designed By:	Date:	Sheet Number:
G. Knighton	July 11, 2006	COOT
Reviewed By:	Sheet Scale:	3001
G. Knighton	1" = 1'-0"	1 of 3



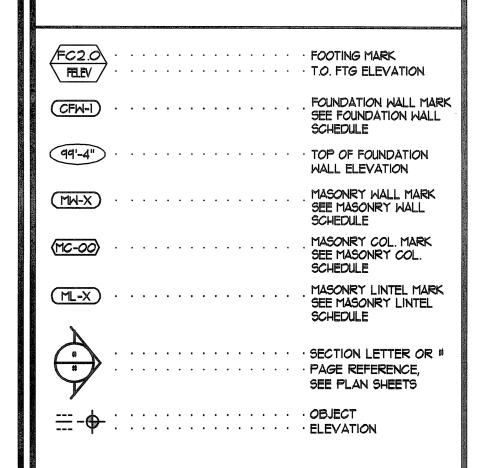
FOOTING AND FOUNDATION PLAN

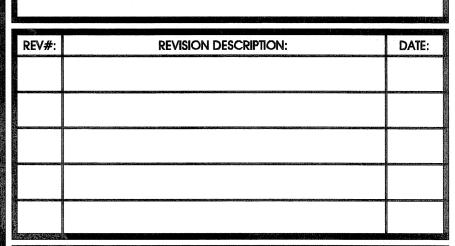


SCALE: 1/4" = 1'-0"



ROOF FRAMING PLAN

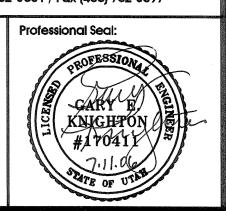






This document and the ideas incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

Copyright © 2006 SKYLINE A/E/S, INC



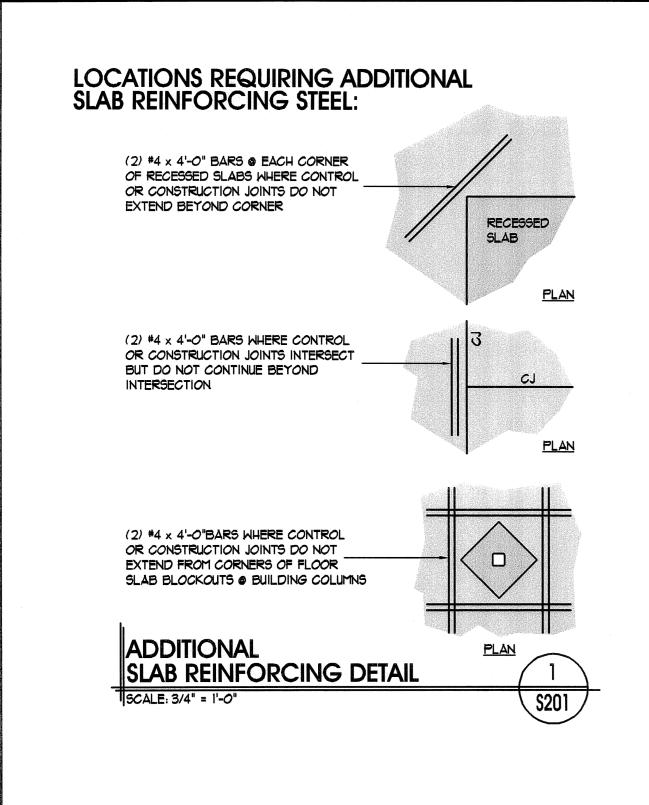
Project Title

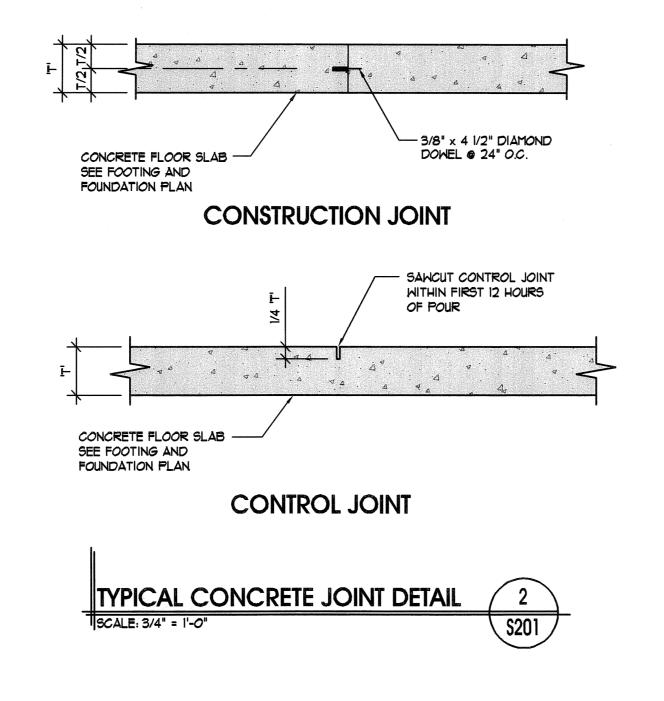
BIG CREEK
CAMPGROUND RESTROOMS
Bear Lake State Park, Utah

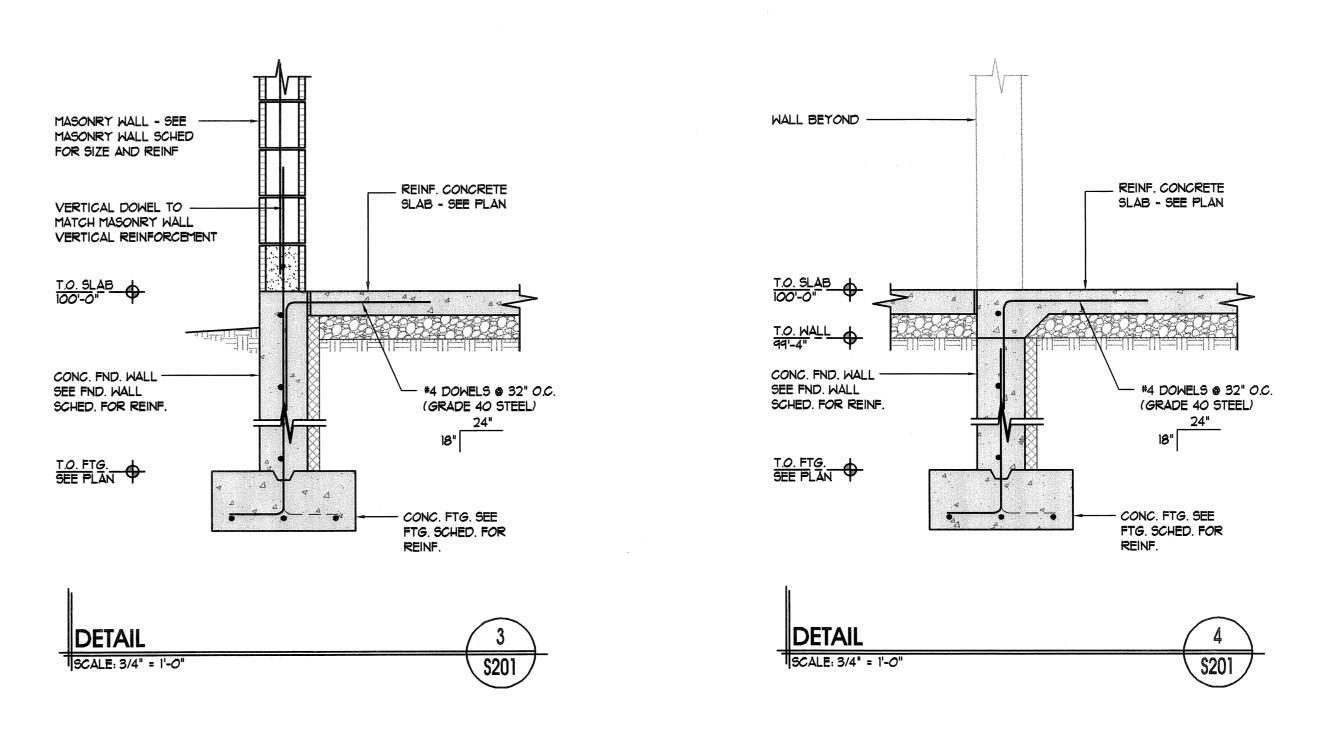
Sheet Title:

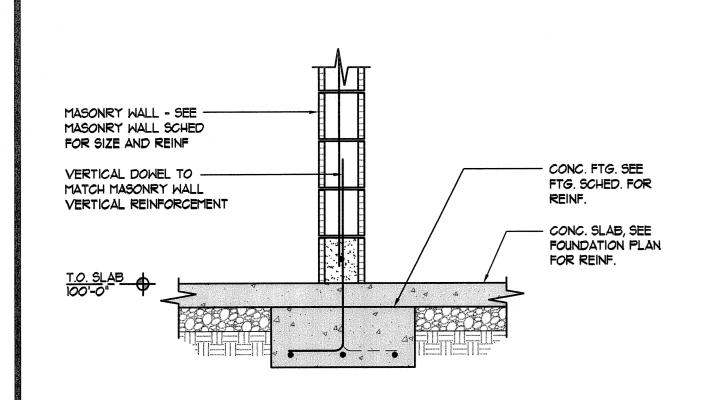
STRUCTURAL PLANS

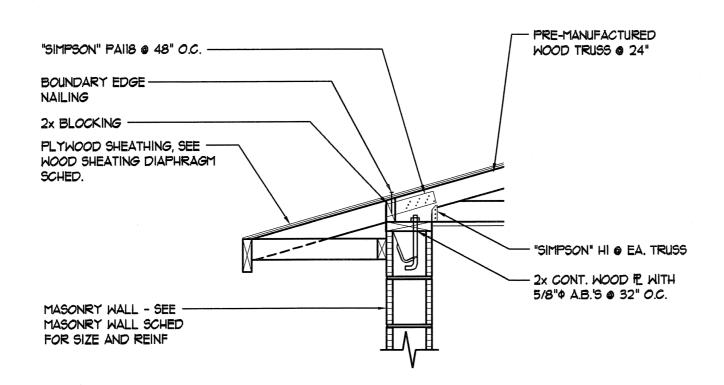
Drawn By:		Project Number:	DFCM Project Number:
T. Ekins		06-083	06190510
Designed By:		Date:	Sheet Number:
G. Kni	ghton	July 11, 2006	
Reviewed B	y:	Sheet Scale:	
G. Kni	ghton	1" = 1'-0"	2 of 3





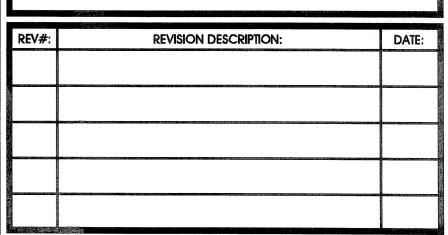














This document and the ideas incorporated herein, as an
Instrument of professional service,
are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

GARY E. KNIGHTON

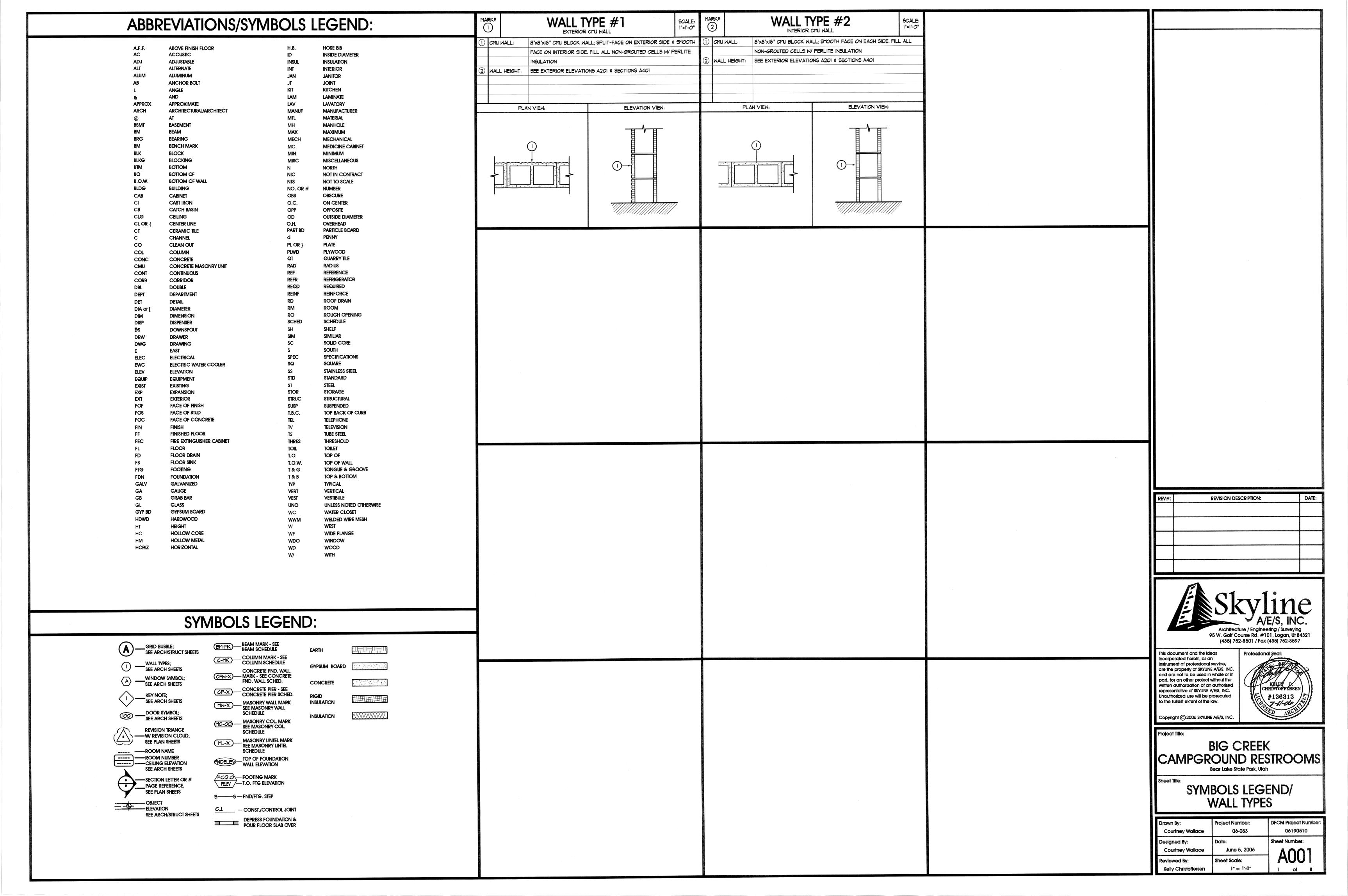
Copyright © 2006 SKYLINE A/E/S, INC.

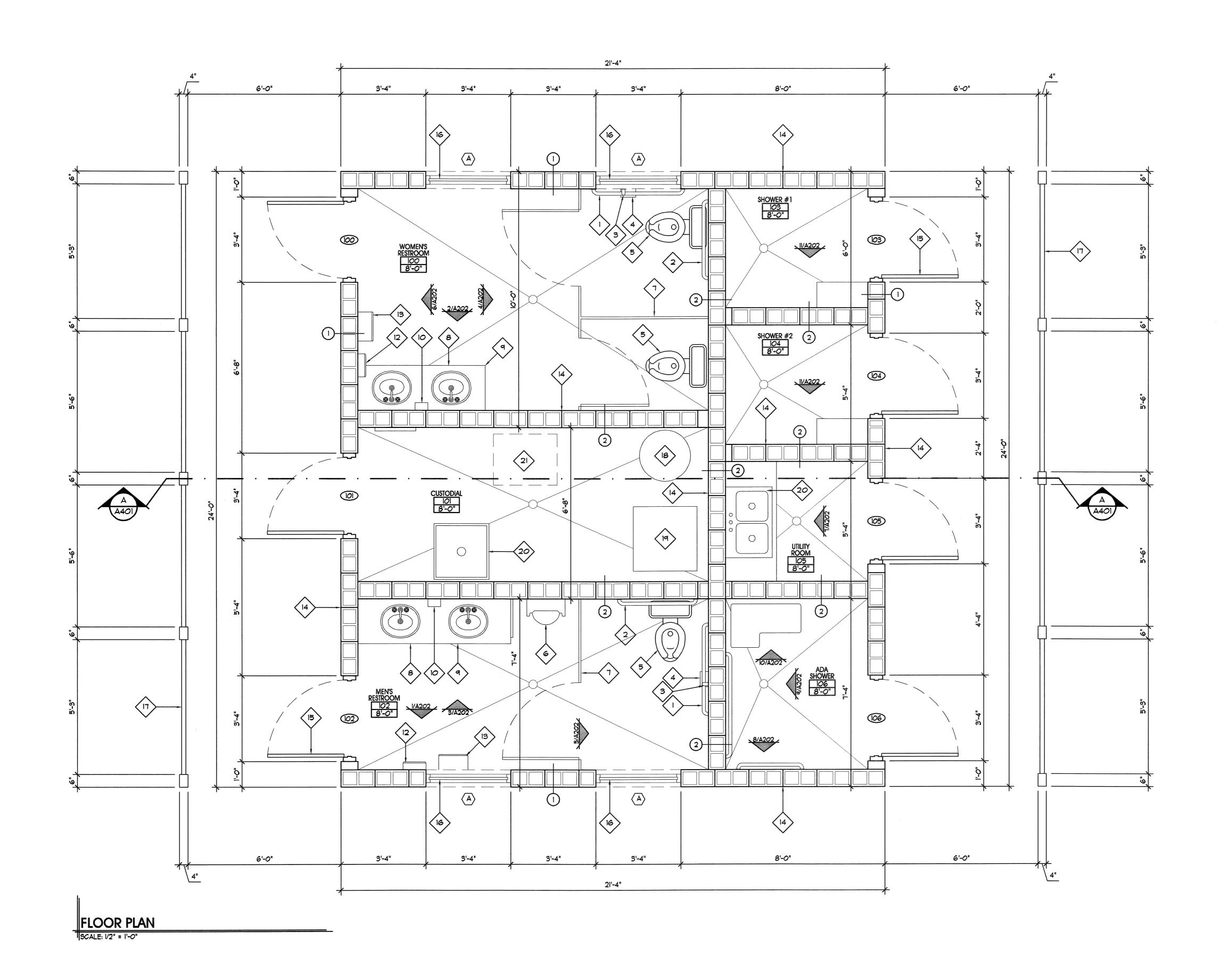
**BIG CREEK** CAMPGROUND RESTROOMS Bear Lake State Park, Utah

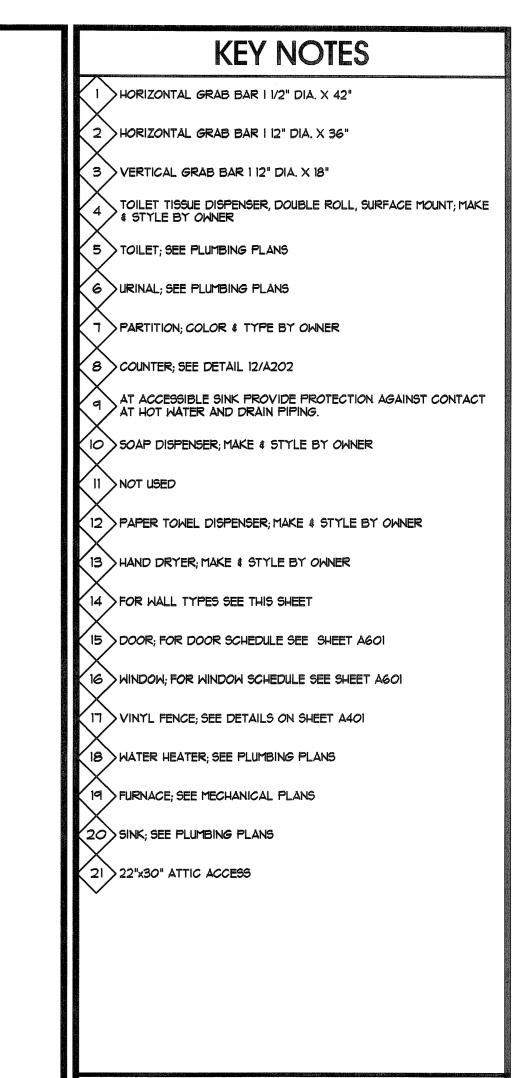
Sheet Title:

STRUCTURAL DETAILS

A SECOND CONTRACTOR OF THE SECOND CONTRACTOR O		10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Drawn By: T. Ekins	Project Number: 06-083	DFCM Project Number: 06190510
Designed By: G. Knighton	Date: July 11, 2006	Sheet Number:
Reviewed By: G. Knighton	Sheet Scale: 3/4" = 1'-0"	3 of 3







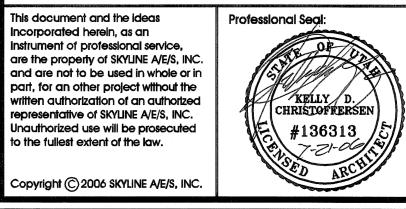
### **GENERAL NOTES**

- SUBMIT SHOP DRAWINGS OF ALL TOILET ACCESSORIES SHOWING SIZES, METHOD OF CONSTRUCTION AND MOUNTING TECHNIQUES. - TOILET ACCESSORIES SHALL BE BOBRICK OR EQUAL - COORDINATE WITH ALL OTHER TRADES WHOSE WORK RELATES TO ACCESSORY ITEMS FOR PLACING OF ALL REQUIRED BACKING AND FURRING TO INSURE PROPER LOCATIONS & ANCHORING - SEE SPECIFICATIONS FOR DETAILED HARDWARE DESCRIPTIONS

REV#:	REVISION DESCRIPTION:	DATE:
4		



This document and the ideas incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

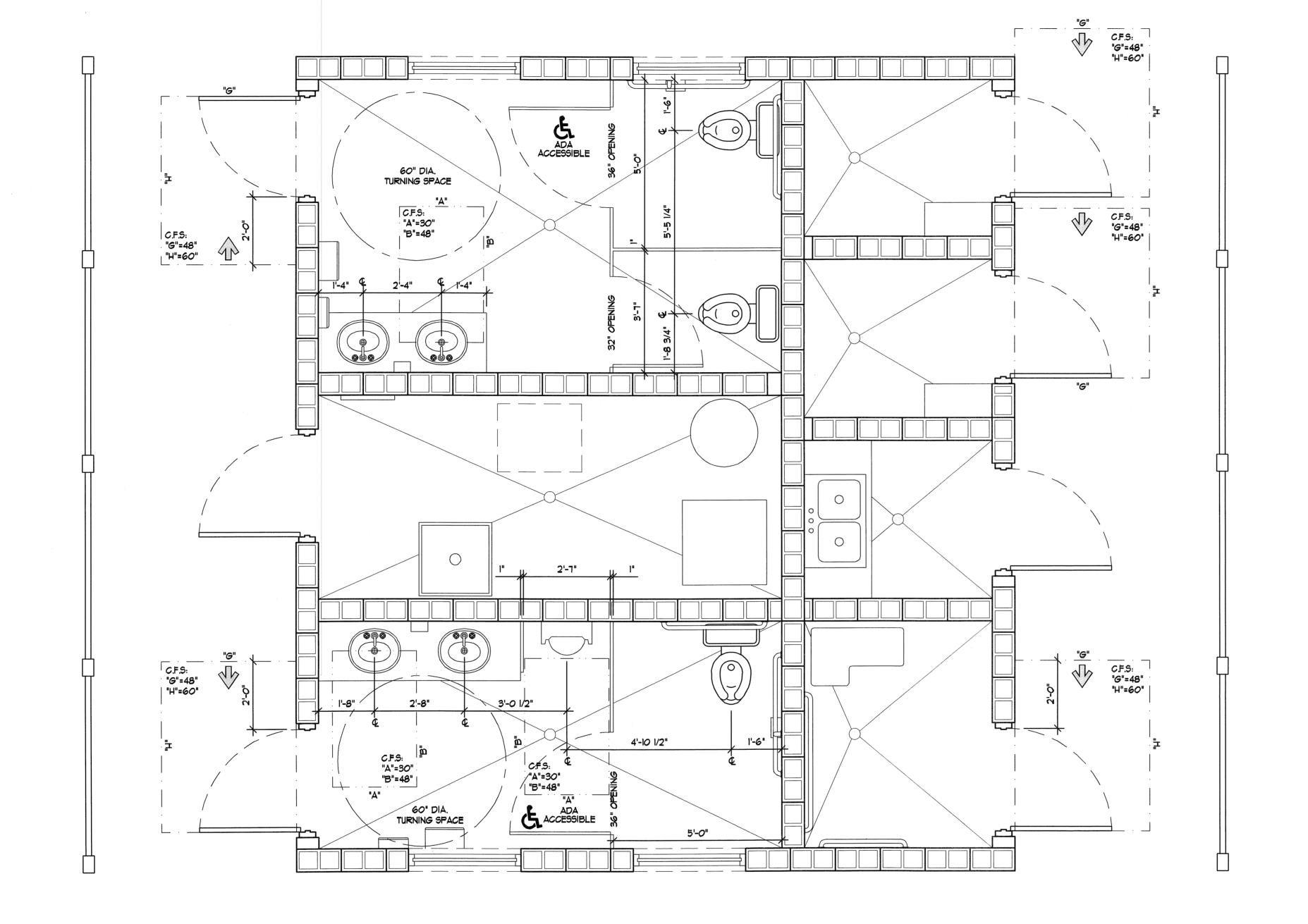


### BIG CREEK CAMPGROUND RESTROOMS Bear Lake State Park, Utah

Sheet Title:

**FLOOR** PLAN

Drawn By: Courtney Wallace	Project Number: 06-083	DFCM Project Number: 06190510
Designed By: Courtney Wallace	Date: June 5, 2006	Sheet Number:
Reviewed By:	Sheet Scale:	AIUI
Kelly Christoffersen	1/2" = 1'-0"	2 of 8



ADA ACCESSIBLITY PLAN/
FIXTURE DIMENSION PLAN

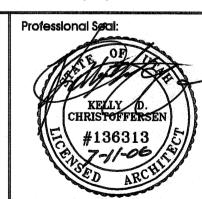
| SCALE: 1/2' = 1'-0"

REV#:	REVISION DESCRIPTION:	DATE:



This document and the ideas incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

Copyright © 2006 SKYLINE A/E/S, INC.

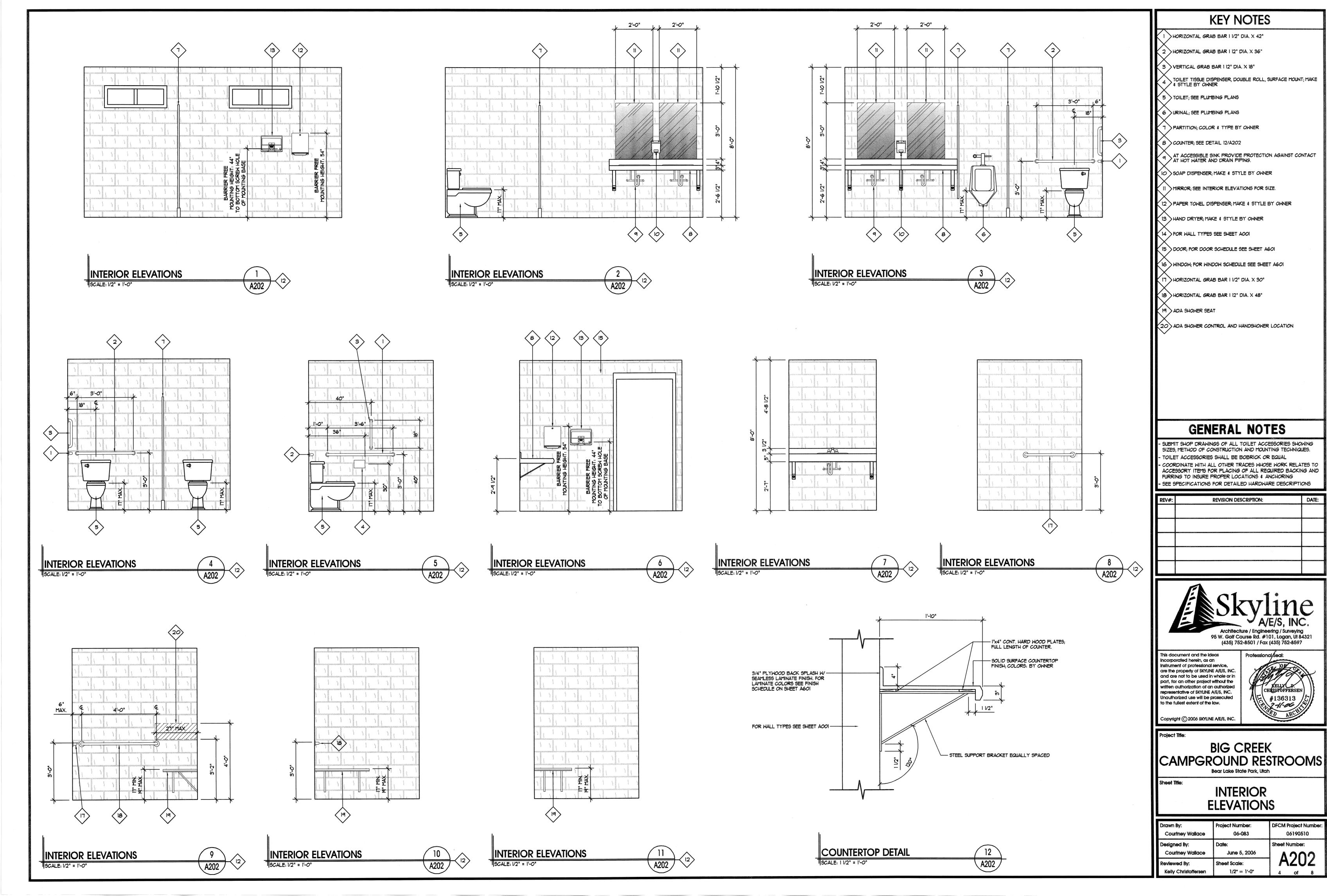


Project Title:

BIG CREEK
CAMPGROUND RESTROOMS
Bear Lake State Park, Utah

ADA ACCESSIBILITY PLAN/ FIXTURE DIMENSION PLAN

Drawn By: Courtney Wallace	Project Number: 06-083	DFCM Project Number: 06190510
Designed By: Courtney Wallace	Date: June 5, 2006	Sheet Number:
Reviewed By: Kelly Christoffersen	Sheet Scale: 1/2" = 1'-0"	A2U I 3 of 8

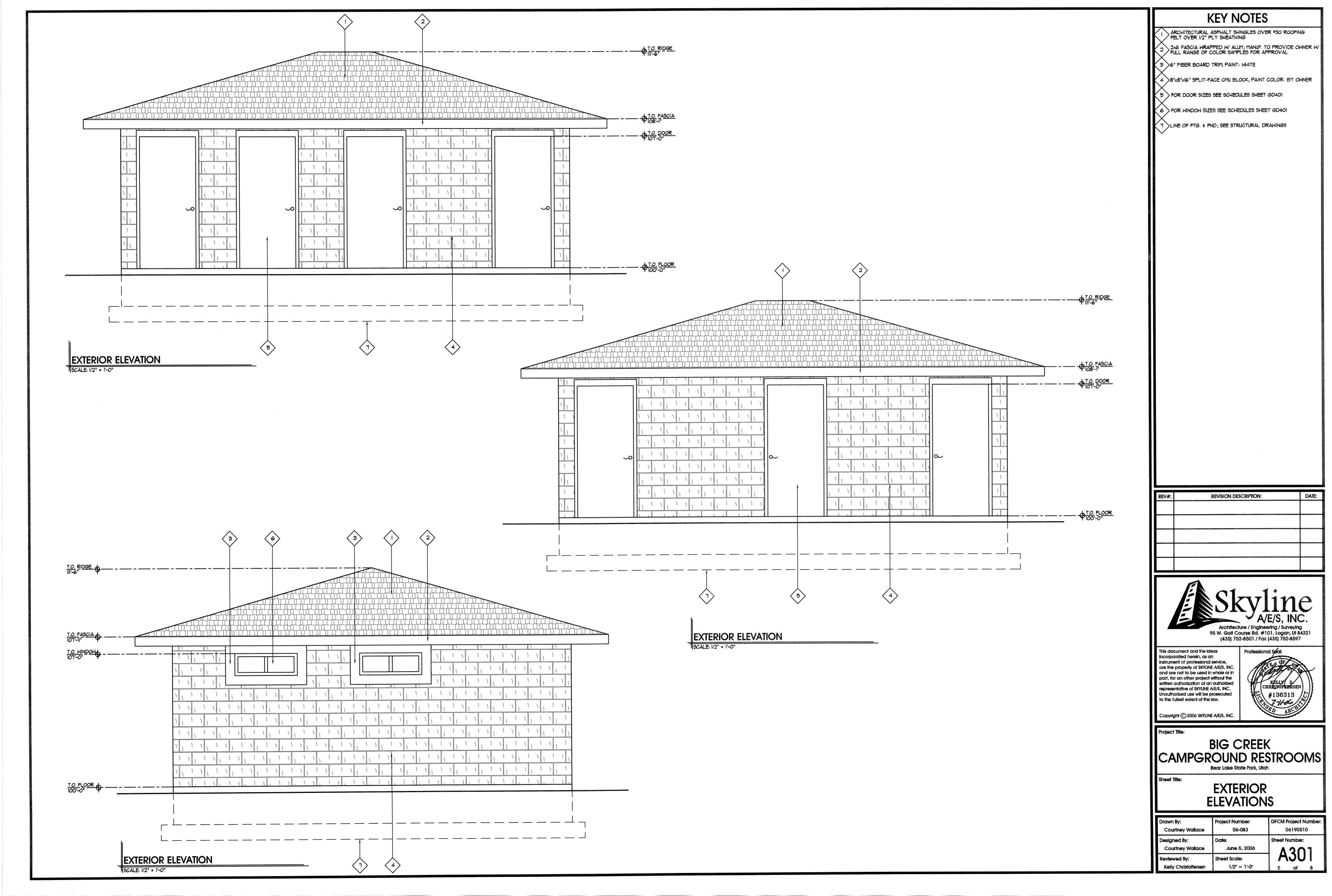


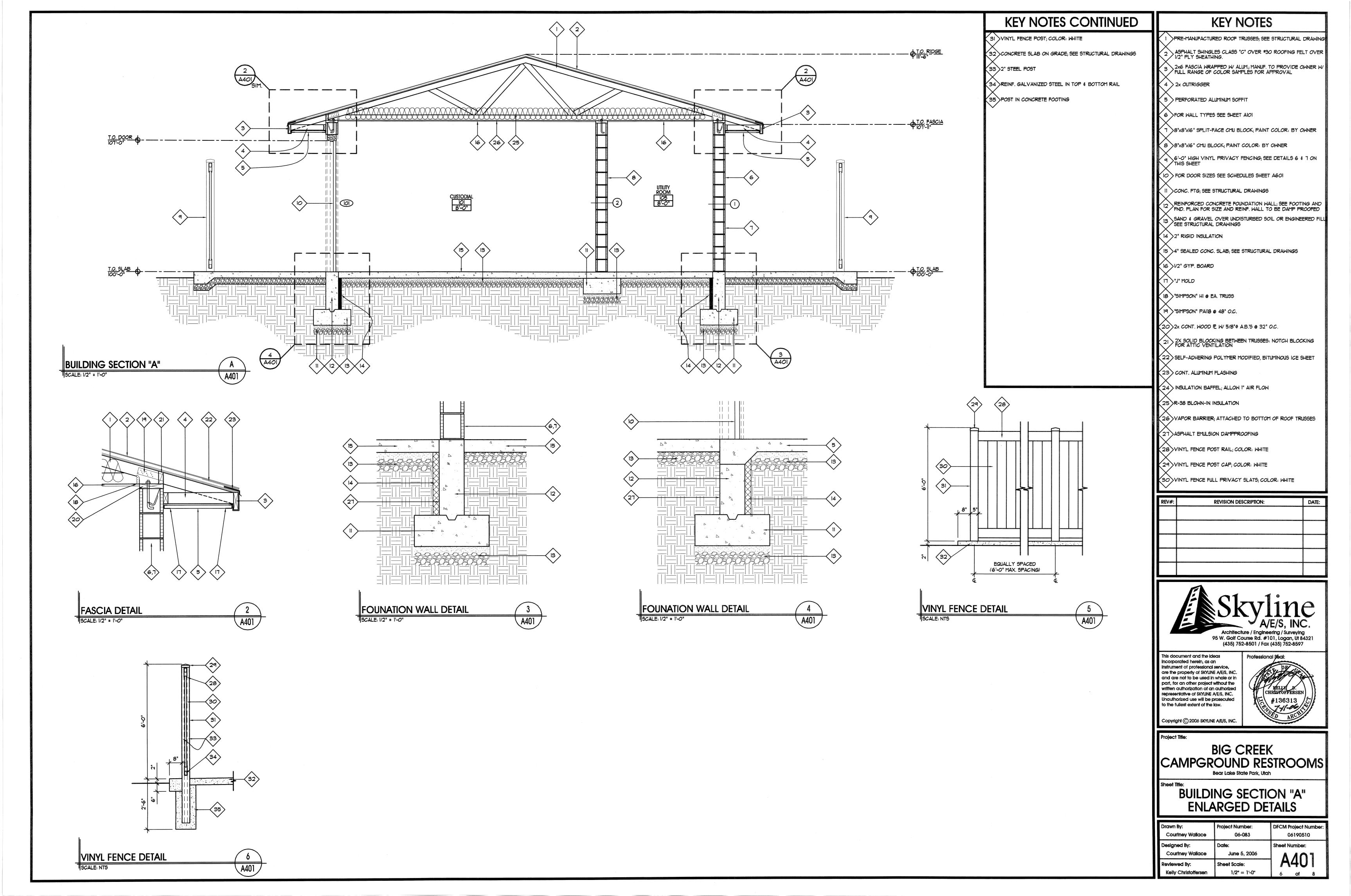
DATE:

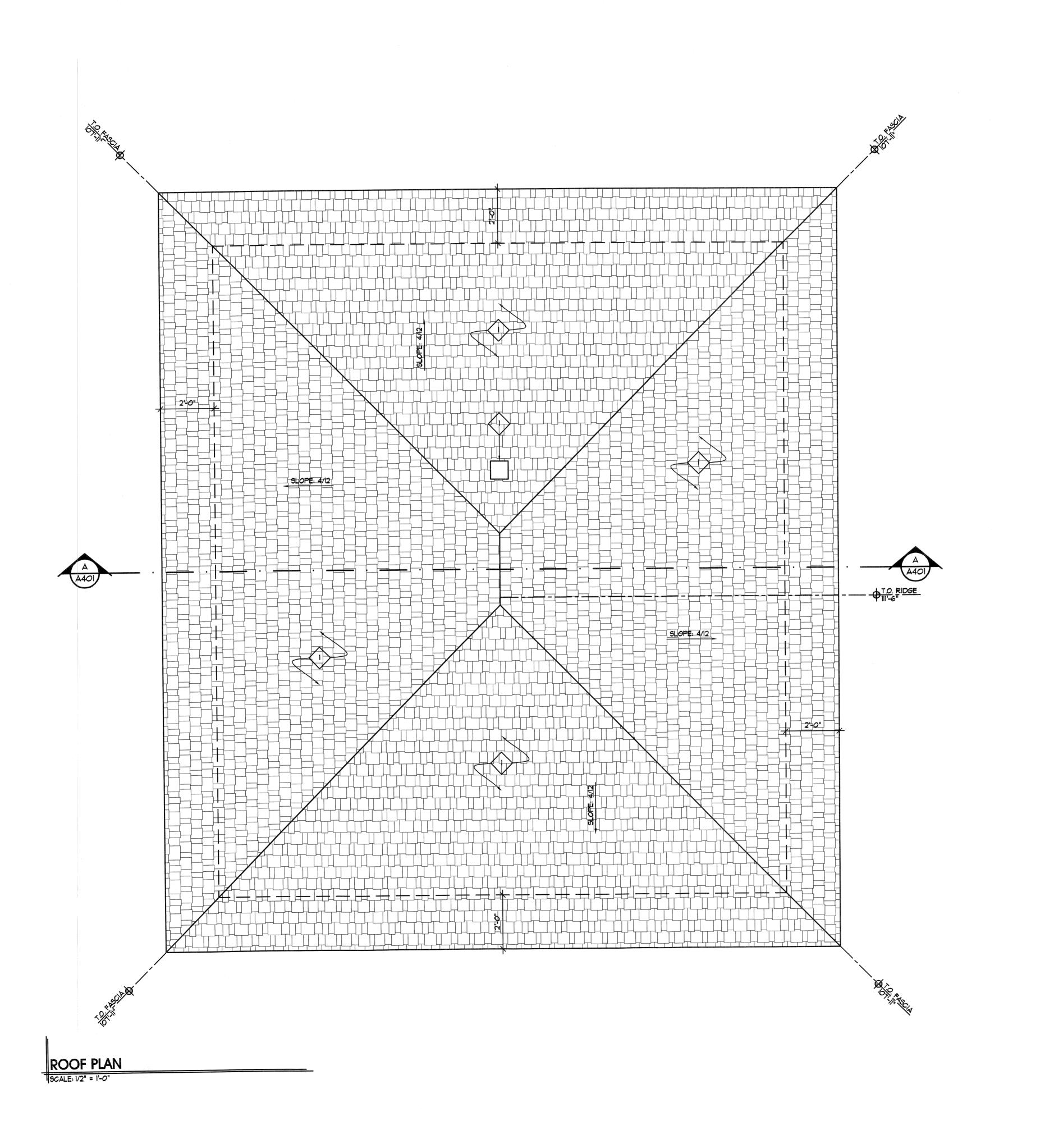
DFCM Project Numbe

Sheet Number:

06190510







### **KEY NOTES**

ARCHITECTURAL ASPHALT SHINGLES OVER #30 ROOFING FELT OVER 1/2" PLY SHEATHING

2 SQUARE METAL ROOF VENT; COLOR: BLACK; VENT TO PROVIDE 50 SQUARE INCHES OF NET FREE AREA

# ATTIC VENTILATION CALCS (IBC 2003, SEC. 1203.2)

TOTAL BLDG. SQ. FT.: 709

50% OF REQ'D. VENTILATING AREA SQ. FT.: 355 (50% THROUGH ATTIC; 50% THROUGH SOFFIT)

NET FREE VENTILATING AREA (1/150): 355/150=2 SQ. FT.

50% NET FREE AREA: 34 SQ. FT/50 SQ. IN. (NET FREE AREA PER ATTIC VENT) TOTAL AMOUNT OF VENTILATORS REQ'D: I

REV#: REVISION DESCRIPTION: DATE:



This document and the Ideas incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

Copyright © 2006 SKYLINE A/E/S, INC.



Project 11tl

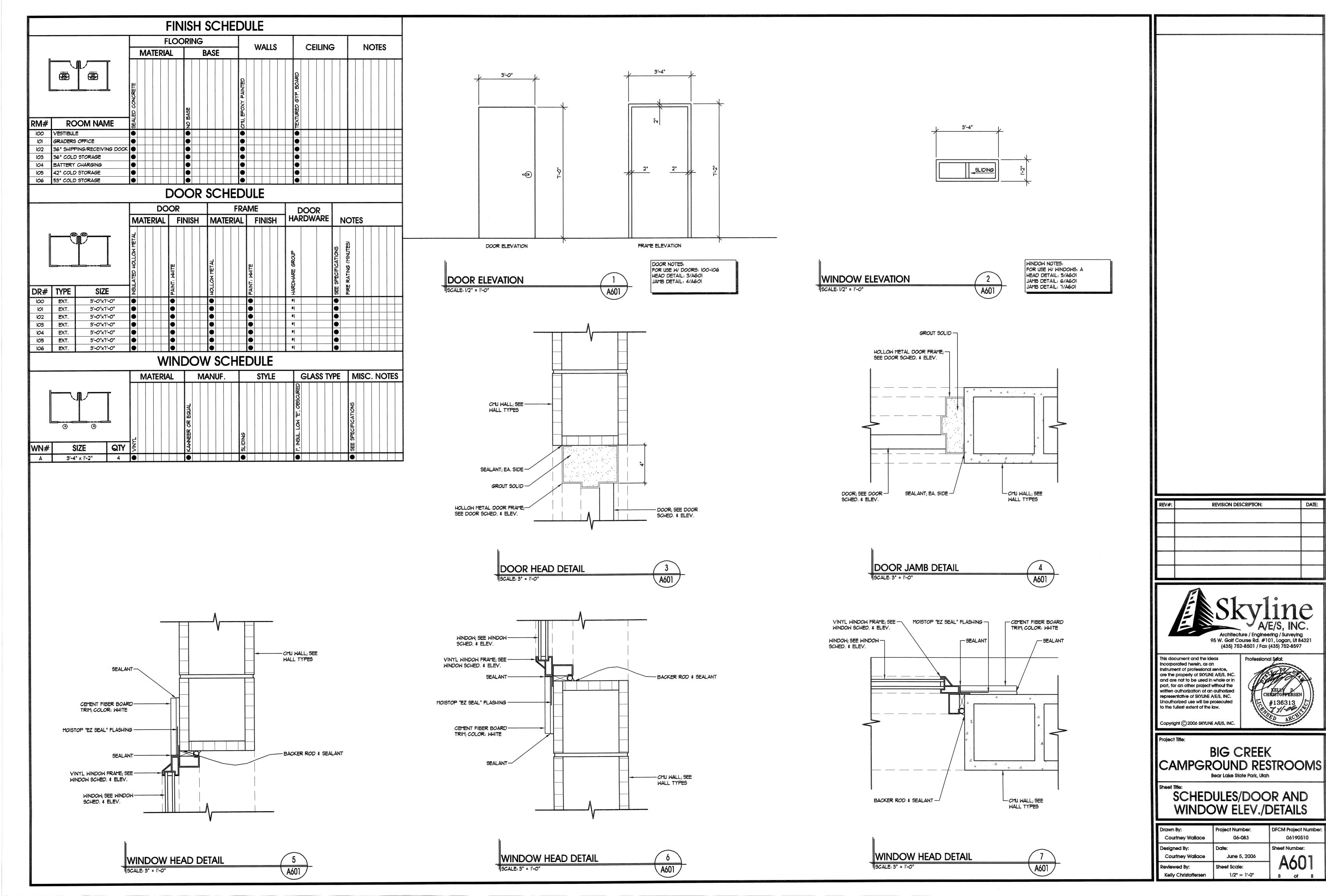
# BIG CREEK CAMPGROUND RESTROOMS

Bear Lake State Park, Utah

Sheet Title:

ROOF PLAN

Drawn By: Courtney Wallace	Project Number: 06-083	DFCM Project Number: 06190510
Designed By: Courtney Wallace	Date: June 5, 2006	Sheet Number:
Reviewed By: Kelly Christoffersen	Sheet Scale: 1/2" = 1'-0"	AJU I



DATE:

Professional Séal:

Project Number:

Sheet Scale:

06-083

June 5, 2006

1/2" = 1'-0"

DFCM Project Number:

06190510

Sheet Number:

PLUMBING GENERAL NOTES

DESIGN/BUILD NOTES: A. THESE DRAWINGS AND SPECIFICATIONS ARE FOR THE DIVISION 15 CONTRACTOR TO ENGINEER, DESIGN, BID AND INSTALL A PLUMBING SYSTEM PER THE DESIGN INTENT SHOWN.

B. ALL EQUIPMENT, PIPING, COMPONENT AND ACCESSORY SIZES, CAPACITIES, AND TYPES SHOWN IN THESE DRAWINGS AND SPECIFICATIONS SHALL BE ADHERED

C. THE CONTRACTOR SHALL DESIGN AND INSTALL A COMPLETE AND FULLY OPERATIONAL SYSTEM.

1. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT A COMPLETE, OPERATIONAL PLUMBING SYSTEM FOR THE ENTIRE PROJECT AS SHOWN ON THESE DRAWINGS, INCLUDING ALL NECESSARY FEES AND PERMITS.

2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE MOST RECENTLY ADOPTED REQUIREMENTS OF THE INTERNATIONAL MECHANICAL CODE, UNIFORM MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, INTERNATIONAL BUILDING CODE, UNIFORM PLUMBING CODE, UNIFORM BUILDING CODE, AND ALL OTHER APPLICABLE CITY. COUNTY, SCHOOL DISTRICT AND STATE CODES AND REGULATIONS IN EFFECT AT THE DATE OF THE BID. CONFORM TO ANY CODES, RULES, REGULATIONS AND REQUIREMENTS THAT THE PROJECT OWNER HAS.

3. PRIOR TO FABRICATION AND INSTALLATION THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL PLUMBING PIPING, DUCTWORK, AND EQUIPMENT WITH PLUMBING PIPING, PLUMBING EQUIPMENT, ALL DUCTWORK, AND ALL OTHER TRADES INCLUDING BUT NOT LIMITED TO THE MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR, GENERAL CONTRACTOR, AND ANY CONTRACTOR HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.

4. THE DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENTS AND THE EXTENT OF THE SYSTEM. IT SHALL BE THE WORK OF THE CONTRACTOR TO MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES, OR MATERIAL REQUIRE PRIOR APPROVAL BY THE CONSULTING ENGINEER.

5. ALL PLUMBING INFORMATION IS NOT SHOWN ON THE PLUMBING DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.

6. THE WORKING DRAWINGS ARE DIAGRAMMATIC. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR PLUMBING EQUIPMENT AND PIPING SHALL BE CHECKED AND COORDINATED WITH THE ARCHITECTURAL, MECHANICAL, STRUCTURAL AND ELECTRICAL DRAWINGS.

7. EXACT ROUTING OF WASTE, GAS, AND WATER SERVICE IS DEPENDENT ON LOCAL SITE CONDITIONS AND MODIFICATIONS IN EQUIPMENT CONNECTIONS. EXACT LOCATION OF EQUIPMENT MAY VARY DEPENDING ON LOCAL CODE, HEALTH DEPARTMENT AND CITY REQUIREMENTS.

8. DETAILS: THE CONTRACTOR IS RESPONSIBLE TO REVIEW AND USE WHERE APPROPRIATE ALL OF THE PLUMBING DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE PLUMBING SYSTEM WITHOUT USING THE INCLUDED DETAILS IS THE RESPONSIBILITY OF THE CONTRACTOR.

9. PIPING SCHEMATICS: THE CONTRACTOR IS RESPONSIBLE TO REVIEW THE PIPING SCHEMATICS INCLUDED WITH THE DRAWINGS FOR PIPING CONNECTIONS TO ALL PLUMBING EQUIPMENT. THE PIPING SCHEMATICS SHOW DETAILED CONNECTIONS INCLUDING NECESSARY VALVES, FITTINGS, PRESSURE AND TEMPERATURE GAUGES, ETC., THAT ARE NOT SHOWN ON THE PIPING PLANS ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE PLUMBING SYSTEM WITHOUT USING THE INCLUDED PIPING SCHEMATICS IS THE RESPONSIBILITY OF THE CONTRACTOR.

10. THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.

11. PREPARE 6 COPIES OF SUBMITTALS IN AN INDEXED, LABELED FOLDER CONTAINING FULL PERFORMANCE, MATERIAL AND INSTALLATION INFORMATION ABOUT ALL EQUIPMENT, PIPING, COMPONENTS AND ACCESSORIES TO BE USED. SPECTRUM ENGINEERS WILL CHECK SUBMITTALS AT MOST TWICE. TIME SPENT ON SUBSEQUENT SUBMITTALS WILL BE BILLED TO THE CONTRACTOR BY THE ENGINEER AT ITS CURRENT HOURLY RATES.

12. THE STRUCTURE SHOWN ON ALL DETAILS MAY OR MAY NOT PERTAIN TO A PORTION OR ANY PORTION OF THE BUILDING. COORDINATE MOUNTING REQUIREMENTS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

13. ANY PART OF THIS INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

14. ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE SITE

15. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, VALVES, AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.

16. ALL MOTORS REQUIRED SHALL BE BY THE DIVISION 15 CONTRACTOR. ALL MOTOR STARTING EQUIPMENT, IF NOT A PART OF THE EQUIPMENT, IS FURNISHED BY THE ELECTRICAL CONTRACTOR.

19. THE CONTRACTOR IS RESPONSIBLE FOR PLUMBING EQUIPMENT CHECK-IN, SAFEKEEPING, AND DAMAGE.

20. INVERTS SHOWN ON PLUMBING DRAWINGS MAY BE REFERENCED FROM THE FINISHED FLOOR ELEVATION. COORDINATE ALL INVERTS WITH CIVIL DRAWINGS PRIOR TO INSTALLATION.

21. PROVIDE WALL CLEANOUTS IN ALL VENTS FOR COMBINATION WASTE AND VENT SYSTEMS AS REQUIRED BY LOCAL AND NATIONAL CODES.

22. ALL VENT FITTINGS FOR WASTE SYSTEMS BELOW OVERFLOWS OF FIXTURES SHALL BE DRAINAGE TYPE.

23. CONTRACTOR TO COMPLY WITH THE LATEST ADOPTED IPC WHEN SIZING TRAP ARMS ON COMBINATION WASTE AND VENT SYSTEMS. THE DRAWINGS INDICATE THE WASTE LINE SIZE AND THE SIZE OF THE TRAP REQUIRED.

24. PROVIDE CLEANOUTS IN ACCORDANCE WITH THE REQUIREMENTS OF APPLICABLE CODES. FLOOR CLEANOUTS SHALL BE LOCATED OUT OF TRAFFIC

25. LOCATE ALL PLUMBING VENTS AT LEAST 3 FEET ABOVE OR 10 FEET AWAY FROM ALL OUTSIDE AIR INTAKES INTO THE BUILDING.

26. SEE "PLUMBING FIXTURE SCHEDULE" FOR FIXTURE MAKE AND TYPE, AND SIZE OF INDIVIDUAL WASTE, VENT, AND DOMESTIC WATER PIPING TO FIXTURES.

TESTING AGENCY. 28. EQUIPMENT AND INSTALLATION SHALL MEET NATIONAL SANITATION FOUNDATION

27. ALL PLUMBING EQUIPMENT SHALL BE LISTED AND LABELED BY AN APPROVED

(NSF) STANDARDS, OR EQUIVALENT.

30. ALL PIPE SHALL BE SECURED BY DOUBLE NUTTING AT THE HANGER ROD

29. PROVIDE PROPER PROVISIONS FOR EXPANSION OR MOVEMENT OF ALL

ATTACHMENT TO THE STRUCTURE, AND AT THE PIPE HANGER. 31. PROVIDE WATER HAMMER ARRESTORS (SHOCK ABSORBERS) AT ALL PIPE

LOCATIONS WHERE VALVE CLOSURES (SUCH AS FLUSH VALVES) MAY CAUSE

WATER HAMMER OR RESULT IN EXCESSIVE PIPE VIBRATION OR MOVEMENT. 32. PROPERLY LUBRICATE ALL PIECES OF EQUIPMENT BEFORE TURNING THE SYSTEM OVER TO THE OWNER.

33. TWO OPERATING AND MAINTENANCE MANUALS SHALL BE PROVIDED IN HARD BACK LOOSE LEAF BINDERS. MANUALS SHALL CONTAIN PRODUCT CUT SHEETS AND OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL EQUIPMENT, ACCESSORIES, FIXTURES, VALVES, ETC., PROVIDED FOR THE PROJECT.

34. UPON COMPLETION OF THE WORK, REMOVE ALL SURPLUS MATERIALS AND RUBBISH. MAKE ALL REQUIRED PATCHING AND REPAIRS OF OTHER TRADES' WORK DAMAGED BY THIS CONTRACTOR, AND LEAVE THE PREMISES IN A CLEAN, ORDERLY CONDITION.

35. THE CONTRACTOR SHALL OPERATE THE SYSTEM AND DEMONSTRATE ALL ASPECTS TO THE ENGINEER AND/OR OWNER, TO PROVE IT'S OPERATION.

36. THE CONTRACTOR SHALL GUARANTEE THE PLUMBING SYSTEM FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.

37. THE CONTRACTOR SHALL, DURING CONSTRUCTION, MAINTAIN A SET OF AS-BUILT REDLINED RECORD DRAWINGS AT THE PROJECT SITE. ALL CHANGES IN LAYOUT, ROUTING, EQUIPMENT, COMPONENTS, AND ACCESSORIES SHALL BE RECORDED. THESE REDLINES SHALL BE GIVEN TO THE ARCHITECT/ENGINEER AFTER THE FINAL INSPECTION.

### PLUMBING SPECIFICATIONS

15055 - BASIC PIPING MATERIALS AND METHODS CAULK AROUND ALL PIPING THAT PASSES THROUGH FIRE-RATED PARTITIONS WITH A NON-HARDENING CAULKING SIMILAR TO 3M "FIRE BARRIER".

SEAL ALL PIPING THROUGH WALLS AIR TIGHT.

15242 - VIBRATION ISOLATION AND SEISMIC ALL PLUMBING EQUIPMENT AND PIPING MUST BE VIBRATION ISOLATED AND SEISMICALLY BRACED FOR THE SITE SPECIFIC SEISMIC DESIGN CATEGORY AND SEISMIC USE GROUP. IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE IBC, UBC, ASHRAE, AND SMACNA. PROVIDE SEISMIC PRODUCTS BY AMBER-BOOTH OR MASON INDUSTRIES.

IN GENERAL, PROVIDE SPRING MOUNTS TO ATTENUATE LOW FREQUENCY SOUND AND VIBRATION AND NEOPRENE PADS TO ATTENUATE HIGH FREQUENCY SOUND AND VIBRATION. SEISMIC BRACING/MOUNTING CAN BE COMBINED WITH VIBRATION ISOLATION AS APPLICABLE.

CONTRACTOR MANUFACTURED SEISMIC BRACING/RESTRAINT METHODS ARE NOT ACCEPTABLE. PROVIDE A SIGNED AND STAMPED LETTER FROM A PROFESSIONAL ENGINEER CERTIFYING THAT THE SUPPLIED PRODUCTS ARE CORRECT FOR THE APPLICATION AND THAT THE INSTALLATION IS IN COMPLIANCE WITH ALL APPLICABLE CODES.

15250 - MECHANICAL INSULATION PIPE INSULATION TO BE SNAP-ON GLASS FIBER TYPE WITH VAPOR JACKET. SEAL ALL ENDS AND JOINTS TO PROVIDE A COMPLETELY SEALED SYSTEM. ALTERNATIVELY, FOR INTERIOR WATER PIPING, USE FLEXIBLE UNICELLULAR ASTM 534 TYPE 1 INSULATION. USE 1" THICKNESS FOR PIPE UP TO 2"Ø AND 1 1/2" FOR PIPE OVER 2"ø

PROVIDE ADA COMPLIANT FIXTURES WITH SNAP ON ADA ARTICLE 4.19 22FF COMPLIANT WHITE INSULATION. TRUEBRO LAV GUARD, BASIN GUARD OR LAV

15411 - WATER DISTRIBUTION PIPING ALL UNDERGROUND WATER PIPING, 2" AND SMALLER, SHALL BE ASTM 88 TYPE "K" COPPER WITH A MINIMUM NUMBER OF SOLDERED JOINTS. USE 95-5 TIN ANTIMONY COPPER SOLDER. 2-1/2" AND LARGER UNDERGROUND PIPE MUST BE PVC AWWA 900 CLASS 100 WITH SOLVENT CEMENTED JOINTS, OR PB PLASTIC PIPE ASTM D3309 SDR 11 WITH HEAT FUSION JOINTS.

NO TYPE "M" OR DWV COPPER IS TO BE USED IN THIS PROJECT.

ALL ABOVE GROUND HOT AND COLD WATER PIPING SHALL BE ASTM B 88 TYPE "L" COPPER, WITH WROUGHT COPPER FITTINGS AND SOLDERED WITH 95-5 TIN-ANTIMONY SOLDER.

INSTALL PIPE HANGERS WITH THE FOLLOWING MINIMUM ROD SIZES AND MAXIMUM SPACING. UPON COMPLETION OF HANGER INSTALLATION, ALL ADJUSTMENTS HAVING THE POSSIBILITY OF TURNING SHALL BE LOCKED SECURELY IN PLACE BY DOUBLE NUTTING AT THE HANGER ROD ATTACHMENT TO THE STRUCTURE, AND AT THE PIPE HANGER.

NOM. PIPE	MAX.	MIN. ROD
SIZE	SPAN-FT.	SIZE-INCHE
1	7	3/8
1-1/2	9	3/8
2	10	3/8
3	12	1/2
4	14	5/8
6	17	3/4

ALL PIPE HANGERS AND EQUIPMENT SUPPORTS SHALL BE LOCATED A MINIMUM DISTANCE OF 2" FROM ANY REFRIGERANT PIPE.

ALL PLUMBING FIXTURES CONNECTED TO A POTABLE WATER SYSTEM WITH HOSE CONNECTIONS ON THE OUTLET SIDE AND OWNER FURNISHED EQUIPMENT WITH DIRECT CONNECTIONS, SHALL BE PROVIDED WITH BACKFLOW PREVENTION.

CLEAN AND DISINFECT WATER PIPING PER AWWA C651 OR C652 PROCEDURES.

ALL FIXTURES USE FOR HAND WASHING, SHOWERING AND OR ANY OTHER APPLICATION WHICH REQUIRES DISCHARGE WATER TO COME INTO CONTACT SHALL BE EQUIPPED WITH A THERMOSTATIC MIXING VALVE, WITH REGULATED MAXIMUM TEMPERATURE DOWN TO 110° F.

15420 - DRAINAGE AND VENT SYSTEMS UNDERGROUND BUILDING DRAIN PIPE AND FITTINGS SHALL BE NO HUB ABS OR PVC PLASTIC PIPE AND FITTINGS PER ASTM D2661 WITH ASTM D2235 SOLVENT, OR ASTM A74 SERVICE WEIGHT, HUB AND SPIGOT CAST IRON SOIL PIPE, OR ASTM A888 (OR CISPI 301) HUBLESS CAST IRON SOIL PIPE WITH ASTM C564 HEAVY DUTY SHIELDED STAINLESS STEEL COUPLINGS.

ABOVE GROUND SANITARY DRAINAGE AND VENT PIPING, IN ALL AREAS EXCEPT AIR PLENUMS AND ANYWHERE IN A FIRED RATED BUILDING, SHALL BE ABS TYPE DWV PLASTIC PIPE AND FITTINGS PER ASTM D2661 WITH ASTM D2255 SOLVENT, OR PVC PLASTIC PIPE AND FITTINGS PER ASTM D2665 WITH ASTM D2564 SOLVENT, OR SERVICE WEIGHT, NO HUB CAST IRON COUPLED PIPE AND FITTINGS WITH COMPRESSION TYPE NEOPRENE GASKETS AND STAINLESS STEEL BANDS.

ALL SANITARY DRAINAGE AND VENT PIPING INSIDE AIR PLENUMS AND ANYWHERE IN A FIRE RATED BUILDING SHALL BE NO HUB SERVICE WEIGHT CAST IRON COUPLED PIPE AND FITTINGS WITH COMPRESSION TYPE NEOPRENE GASKETS AND STAINLESS STEEL BANDS. ASTM B306 COPPER PIPE MAY BE USED WITH SOLDERED JOINTS FOR PIPE 3" AND SMALLER.

INSTALL SANITARY DRAIN LINES 2-1/2" AND LESS WITH A SLOPE OF 2%. INSTALL SANITARY DRAIN LINES 3"-6" WITH A SLOPE OF NOT LESS THAN 1%.

15440 — PLUMBING FIXTURES PROVIDE AND INSTALL CARRIERS AS REQUIRED FOR FLOOR OR WALL MOUNTED PLUMBING FIXTURES. INSTALL ALL FIXTURES WITH ACCESSORIES AS REQUIRED

TO PROVIDE A COMPLETE, WORKABLE INSTALLATION.

PLUMBING FIXTURES SHALL INCLUDE COMPRESSION STOPS ABOVE FLOOR IN SUPPLIES TO ALL FIXTURES AND A MINIMUM 17 GAUGE P-TRAP.

ALL LAVATORIES AND HAND SINKS WILL HAVE A COMBINATION FAUCET OR PREMIXING FAUCET CAPABLE OF SUPPLYING WARM WATER FOR A MINIMUM OF 10

ALL JANITORIAL SINK FAUCETS MUST BE PROVIDED WITH AN APPROVED BACKFLOW PREVENTION DEVICE.

SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF FLOOR DRAINS AND FLOOR SINKS.

SECTION 02510 - WATER SYSTEMS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. THIS SECTION INCLUDES WATER SYSTEMS PIPING FOR POTABLE WATER SERVICE AS FOLLOWS: 1. WATER SERVICE TO 5 FEET OUTSIDE THE BUILDING. B. RELATED SECTIONS: THE FOLLOWING SECTIONS CONTAIN REQUIREMENTS THAT RELATE TO

THIS SECTION: 1. DIVISION 2 SECTION "EARTHWORK" FOR EXCAVATION, TRENCHING AND BACKFILL OF TRENCHES. 2. DIVISION 15 SECTIONS FOR WATER DISTRIBUTION SYSTEMS INSIDE BUILDING.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. MINIMUM WORKING PRESSURE RATINGS: EXCEPT WHERE OTHERWISE INDICATED, THE FOLLOWING ARE MINIMUM PRESSURE REQUIREMENTS FOR WATER SYSTEM PIPING. 1. UNDERGROUND PIPING: 150 PSIG (1035 KPA).

1.4 SUBMITTALS

A. GENERAL: SUBMIT THE FOLLOWING ACCORDING TO CONDITIONS OF THE CONTRACT AND DIVISION 1 SPECIFICATION SECTIONS. B. PRODUCT DATA, INCLUDING PRESSURE RATING, RATED CAPACITY, AND SETTINGS OF SELECTED

MODELS FOR THE FOLLOWING: VALVES.

2. IDENTIFICATION MATERIALS AND DEVICES. C. RECORD DRAWINGS AT PROJECT CLOSEOUT OF INSTALLED WATER SYSTEM PIPING AND PRODUCTS ACCORDING TO DIVISION 1 SECTION "PROJECT CLOSEOUT."

D. TEST REPORTS SPECIFIED IN "FIELD QUALITY CONTROL" ARTICLE IN PART

E. MAINTENANCE DATA FOR INCLUSION IN "OPERATING AND MAINTENANCE MANUAL" SPECIFIED IN DIVISION 1 SECTION "PROJECT CLOSEOUT." INCLUDE DATA FOR THE FOLLOWING:

1.5 COORDINATION DRAWINGS

A. COORDINATION DRAWINGS SHOWING PIPE SIZES AND VALVES, METER AND SPECIALTY LOCATIONS AND ELEVATIONS. INCLUDE DETAILS OF UNDERGROUND STRUCTURES, CONNECTIONS, ANCHORS, AND REACTION BACKING. SHOW OTHER PIPING IN SAME TRENCH AND CLEARANCES FROM WATER SYSTEM PIPING. INDICATE INTERFACE AND SPATIAL RELATIONSHIP BETWEEN PIPING AND PROXIMATE STRUCTURES. DO NOT SUBMIT. RETAIN AT JOB SITE.

1.6 QUALITY ASSURANCE A. COMPLY WITH REQUIREMENTS OF UTILITY SUPPLYING WATER. INCLUDE TAPPING OF WATER MAINS, BACKFLOW PREVENTION, WATER METER AND METER VAULTS. B. COMPLY WITH STANDARDS OF AUTHORITIES HAVING JURISDICTION FOR POTABLE WATER PIPING AND PLUMBING SYSTEMS. INCLUDE MATERIALS, INSTALLATION, TESTING, AND DISINFECTION. C. PROVIDE LISTING/APPROVAL STAMP, LABEL, OR OTHER MARKING ON EQUIPMENT MADE TO SPECIFIED STANDARDS. D. LISTING AND LABELING: PROVIDE EQUIPMENT AND ACCESSORIES THAT ARE LISTED AND

1. THE TERMS "LISTED" AND "LABELED": AS DEFINED IN "NATIONAL ELECTRICAL CODE," ARTICLE

1.7 DELIVERY, STORAGE, AND HANDLING A. PREPARATION FOR TRANSPORT: PREPARE VALVES, INCLUDING FIRE HYDRANTS, FOR SHIPPING

AS FOLLOWS: 1. ENSURE THAT VALVES ARE DRY AND INTERNALLY PROTECTED AGAINST RUST AND CORROSION. 2. PROTECT VALVES AGAINST DAMAGE TO THREADED ENDS, FLANGE FACES, AND WELD ENDS. 3. SET VALVES IN BEST POSITION FOR HANDLING. SET VALVES CLOSED TO PREVENT RATTLING. B. STORAGE: USE THE FOLLOWING PRECAUTIONS FOR VALVES DURING STORAGE: 1. DO NOT REMOVE END PROTECTORS UNLESS NECESSARY FOR INSPECTION; THEN REINSTALL

FOR STORAGE. 2. PROTECT VALVES FROM WEATHER. STORE VALVES INDOORS AND MAINTAIN TEMPERATURE HIGHER THAN AMBIENT DEW POINT TEMPERATURE. SUPPORT VALVES OFF GROUND OR PAVEMENT IN WATERTIGHT ENCLOSURES WHEN OUTDOOR STORAGE IS NECESSARY. C. HANDLING: USE SLING TO HANDLE VALVES WHOSE SIZE REQUIRES HANDLING BY CRANE OR LIFT. RIG VALVES TO AVOID DAMAGE TO EXPOSED VALVE PARTS. DO NOT USE HANDWHEELS OR STEMS AS LIFTING OR RIGGING points.

D. DELIVER PIPES AND TUBES WITH FACTORY-APPLIED END-CAPS. MAINTAIN END-CAPS THROUGH SHIPPING, STORAGE, AND HANDLING TO PREVENT PIPE-END DAMAGE AND TO PREVENT ENTRANCE OF DIRT, DEBRIS, AND MOISTURE. E. PROTECT STORED PIPES AND TUBES FROM MOISTURE AND DIRT. ELEVATE ABOVE GRADE.

DO NOT EXCEED STRUCTURAL CAPACITY OF FLOOR WHEN STORING INSIDE. F. PROTECT FLANGES, FITTINGS, AND PIPING SPECIALTIES FROM MOISTURE AND DIRT. G. STORE PLASTIC PIPES PROTECTED FROM DIRECT SUNLIGHT. SUPPORT TO PREVENT SAGGING AND BENDING.

1.8 PROJECT CONDITIONS

A. RESEARCH PUBLIC UTILITY RECORDS, AND VERIFY EXISTING UTILITY LOCATIONS. CONTACT UTILITY-LOCATING SERVICE FOR AREA WHERE PROJECT IS LOCATED. B. VERIFY THAT WATER SYSTEM PIPING MAY BE INSTALLED IN COMPLIANCE WITH ORIGINAL DESIGN AND REFERENCED STANDARDS.

1.9 SEQUENCING AND SCHEDULING A. COORDINATE CONNECTION TO WATER MAIN WITH UTILITY COMPANY. B. COORDINATE WITH PIPE MATERIALS, SIZES, ENTRY LOCATIONS, AND PRESSURE REQUIREMENTS OF BUILDING WATER DISTRIBUTION SYSTEMS PIPING.

PART 2 - PRODUCTS

2.1 MANUFACTURERS A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

 TAPPING VALVES: A. CLOW VALVE CO. DIV., MCWANE, INC. B. EAST JORDAN IRON WORKS, INC. C. KENNEDY VALVE DIV., MCWANE, INC. D. MUELLER CO., GRINNELL CORP. E. U.S. PIPE & FOUNDRY CO.

C. COORDINATE WITH OTHER UTILITY WORK.

2. GATE VALVES: A. AMERICAN DARLING VALVE DIV., AMERICAN CAST IRON PIPE CO. B. CLOW VALVE CO. DIV., MCWANE, INC. C. EAST JORDAN IRON WORKS, INC.

D. PROD. GEM SPRINKLER CO. DIV., GRINNELL CORP. . HAMMOND VALVE CORP.

F. KENNEDY VALVE DIV., MCWANE, INC. G. MILWAUKEE VALVE CO., INC. H. MUELLER CO., GRINNELL CORP.

I. NIBCO, INC. J. STOCKHAM VALVES & FITTINGS, INC. K. U.S. PIPE & FOUNDRY CO. L. WATEROUS CO.

2.2 PIPES AND TUBES

GLANDS, AND STEEL BOLTS AND NUTS.

A. REFER TO PART 3 ARTICLE "PIPING APPLICATIONS" FOR IDENTIFICATION OF SYSTEMS WHERE PIPE AND TUBE MATERIALS SPECIFIED BELOW ARE USED. B. DUCTILE-IRON PIPE: AWWA C151, CLASSES 150, 200, AND 250.

1. LINING: AWWA C104, CEMENT MORTAR, SEAL COATED.

2. GASKETS, GLANDS, AND BOLTS AND NUTS: AWWA C111 PUSH-ON-JOINT-TYPE PIPE: AWWA C111, RUBBER GASKETS. 4. MECHANICAL-JOINT-TYPE PIPE: AWWA C111, RUBBER GASKETS, DUCTILE- OR CAST-IRON

5. ENCASEMENT: AWWA C105, POLYETHYLENE FILM TUBE. C. COPPER TUBE: ASTM B 88, TYPE K (ASTM B 88M, TYPES A AND B), SEAMLESS WATER TUBE, ANNEALED TEMPER.

D. POLYVINYL CHLORIDE (PVC) PIPE: AWWA C900; CLASSES 150 AND 200; WITH BELL END AND ELASTOMERIC GASKET, WITH PLAIN END FOR CAST-IRON OR DUCTILE-IRON FITTINGS, OR WITH PLAIN END FOR PVC ELASTOMERIC GASKET FITTINGS.

1. PIPE MARKING: NSF 14, "NSF-PVC CTO ONLY." 2. GASKETS: ASTM F 477, ELASTOMERIC SEAL.

2.3 PIPE AND TUBE FITTINGS

A. REFER TO PART 3 ARTICLE "PIPING APPLICATIONS" FOR IDENTIFICATION OF SYSTEMS WHERE PIPE AND TUBE FITTING MATERIALS SPECIFIED BELOW ARE USED. B. DUCTILE-IRON AND CAST-IRON PIPE FITTINGS: AWWA C110, DUCTILE-IRON OR CAST-IRON, 250-PSIG (1725 KPA) MINIMUM PRESSURE RATING; OR AWWA C153, DUCTILE-IRON COMPACT FITTINGS, 350-PSIG (2400 KPA) PRESSURE RATING. 1. LINING: AWWA C104, CEMENT MORTAR. 2. GASKETS: AWWA C111, RUBBER.

C. DUCTILE-IRON AND GRAY-IRON FLANGED FITTINGS: AWWA C110, 250-PSIG (1725 KPA) MINIMUM PRESSURE RATING, WITH AWWA C104 CEMENT-MORTAR LINING. D. POLYETHYLENE ENCASEMENT: AWWA C105, 8-MILS (2 MM) MINIMUM THICKNESS, TUBE OR

E. COPPER TUBE FITTINGS: ASME B16.22, WROUGHT-COPPER, SOLDER-JOINT PRESSURE TYPE. F. POLYVINYL CHLORIDE (PVC) PIPE COUPLINGS AND FITTINGS: AWWA C900, WITH ASTM F 477 ELASTOMERIC SEAL GASKETS.

2.4 JOINING MATERIALS

IS INDICATED.

A. REFER TO PART 3 ARTICLE "PIPING APPLICATIONS" FOR IDENTIFICATION OF SYSTEMS WHERE JOINING MATERIALS SPECIFIED BELOW ARE USED. B. DUCTILE-IRON PIPE AND DUCTILE-IRON OR CAST-IRON FITTINGS: THE FOLLOWING MATERIALS

1. PUSH-ON JOINTS: AWWA C111 RUBBER GASKETS AND LUBRICANT. 2. MECHANICAL JOINTS: AWWA C111 DUCTILE-IRON OR GRAY-IRON GLANDS, HIGH-STRENGTH STEEL BOLTS AND NUTS, AND RUBBER GASKETS.

3. FLANGED JOINTS: AWWA C115 DUCTILE-IRON OR GRAY-IRON PIPE FLANGES, RUBBER GASKETS, AND HIGH-STRENGTH STEEL BOLTS AND NUTS. A. GASKETS: RUBBER, FLAT FACE, 1/8 INCH (3 MM) THICK EXCEPT WHERE OTHER THICKNESS IS INDICATED; AND FULL-FACE OR RING TYPE EXCEPT WHERE OTHER TYPE IS INDICATED.

C. BRAZING FILLER METALS: AWS A5.8, BCUP (COPPER-PHOSPHORUS) SERIES. D. PIPE COUPLINGS: IRON-BODY SLEEVE ASSEMBLY, FABRICATED TO MATCH OUTSIDE DIAMETERS OF PIPES TO BE JOINED.

B. FLANGE BOLTS AND NUTS: ASME B18.2.1, CARBON STEEL, EXCEPT WHERE OTHER MATERIAL

1. SLEEVE: ASTM A 126, CLASS B, GRAY IRON. 2. FOLLOWERS: ASTM A 47, GRADE 32510, OR ASTM A 536 DUCTILE IRON. 3. GASKETS: RUBBER.

4. BOLTS AND NUTS: AWWA C111.

5. FINISH: ENAMEL PAINT. ENCASEMENT: AWWA C105, POLYETHYLENE FILM TUBE OR SHEET. E. PLASTIC PIPE FLANGE GASKET, BOLTS, AND NUTS: TYPE AND MATERIAL RECOMMENDED BY

1. DESCRIPTION: COMBINATION OF COPPER ALLOY AND FERROUS; THREADED, SOLDER, PLAIN, AND WELD-NECK END TYPES AND MATCHING PIPING SYSTEM MATERIALS. 2. DIELECTRIC UNIONS: FACTORY-FABRICATED UNION ASSEMBLY, DESIGNED FOR 250-PSIG (1725 KPA) MINIMUM WORKING PRESSURE AT 180 DEG F (82 DEG C). INCLUDE INSULATING MATERIAL ISOLATING DISSIMILAR METALS AND ENDS WITH INSIDE THREADS ACCORDING TO ASME

3. DIELECTRIC FLANGES: FACTORY-FABRICATED COMPANION-FLANGE ASSEMBLY, FOR 150-PSIG (1035 KPA) OR 300-PSIG (2070 KPA) MINIMUM PRESSURE TO SUIT SYSTEM PRESSURES. 4. DIELECTRIC-FLANGE INSULATION KITS: FIELD-ASSEMBLED COMPANION-FLANGE ASSEMBLY, FULL-FACE OR RING TYPE. COMPONENTS INCLUDE NEOPRENE OR PHENOLIC GASKET. PHENOLIC OR POLYETHYLENE BOLT SLEEVES, PHENOLIC WASHERS, AND STEEL BACKING WASHERS. A. PROVIDE SEPARATE COMPANION FLANGES AND STEEL BOLTS AND NUTS FOR 150-PSIG (1035) KPA) OR 300-PSIG (2070 KPA) MINIMUM WORKING PRESSURE TO SUIT SYSTEM PRESSURES. 5. DIELECTRIC COUPLINGS: GALVANIZED-STEEL COUPLINGS HAVING INERT AND NONCORROSIVE THERMOPLASTIC LINING, WITH THREADED ENDS AND 300-PSIG (2070 KPA) MINIMUM WORKING

6. DIELECTRIC NIPPLES: ELÈCTROPLATED STEEL NIPPLES HAVING INERT AND NONCORROSIVE THERMOPLASTIC LINING, WITH COMBINATION OF PLAIN, THREADED, OR GROOVED END TYPES AND

1. PROVIDE A STEEL TEE-HANDLE OPERATING WRENCH WITH EACH VALVE BOX. WRENCH SHALL HAVE TEE HANDLE WITH ONE POINTED END, STEM OF LENGTH TO OPERATE VALVE, AND SOCKET-FITTING VALVE-OPERATING NUT. C. TAPPING SLEEVE AND TAPPING VALVE: COMPLETE ASSEMBLY, INCLUDING TAPPING SLEEVE,

1. TAPPING SLEEVE: CAST-IRON OR DUCTILE-IRON 2-PIECE BOLTED SLEEVE WITH FLANGED OUTLET FOR NEW BRANCH CONNECTION. SLEEVE MAY HAVE MECHANICAL JOINT ENDS WITH RUBBER GASKETS OR SEALING RINGS IN SLEEVE BODY. USE SLEEVE THAT MATES WITH SIZE AND TYPE PIPE MATERIAL BEING TAPPED. OUTLET FLANGE SHALL BE SIZE REQUIRED FOR BRANCH CONNECTION.

2.7 ANCHORAGES B. RODS: ASTM A 575, STEEL.

4. WATER: POTABLE.

D. BOLTS: ASTM A 307, STEEL E. CAST-IRON WASHERS: ASTM A 126, GRAY IRON. F. CONCRETE REACTION BACKING: PORTLAND CEMENT CONCRETE MIX, 3000 PSI (20.7 MPA).

1. CEMENT: ASTM C 150, TYPE I. 2. FINE AGGREGATE: ASTM C 33, SAND 3. COARSE AGGREGATE: ASTM C 33, CRUSHED GRAVEL.

instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law. Copyright © 2006 SKYLINE A/E/S, INC.

REV#:

GORDON A. NIELSON BIG CREEK

OROFESS/

No.8297

Architecture / Engineering / Surveying

(435) 752-8501 / Fax (435) 752-8597

Professional Seal:

95 W. Golf Course Rd. #101, Logan, Ut 84321

CAMPGROUND RESTROOMS BEAR LAKE STATE PARK 120 North Twelfth Avenue Sheet Title: Pocatello, Idaho 83201

Project Title:

PLUMBING NOTES & **SPECIFICATIONS** 

Drawn By: Project Numbers: Drawing Type: DFCM: 06190510 NEI: 0635 Designed By: Sheet Number: MAY 2006 P00 Reviewed By: Sheet Scale: 1/4" = 1'-0"

REVISION DESCRIPTION:

DATE:

Consulting Engineers

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC.

Unauthorized use will be prosecuted to the fullest extent of the Law.

Copyright © 2006 by: NIELSON ENGINEERING, INC.

PIPING SYSTEM MANUFACTURER, EXCEPT WHERE OTHER TYPE OR MATERIAL IS INDICATED. A. DIELECTRIC FITTINGS: ASSEMBLY OR FITTING HAVING INSULATING MATERIAL ISOLATING JOINED DISSIMILAR METALS TO PREVENT GALVANIC ACTION AND CORROSION.

PRESSURE AT 225 DEG F (107 DEG C). 300-PSIG (2070 KPA) WORKING PRESSURE AT 225 DEG F (107 DEG C).

2.6 VALVES A. NONRISING STEM GATE VALVES 3 INCHES (80 MM) AND LARGER: AWWA C509. RESILIENT SEATED; BRONZE STEM, CAST-IRON OR DUCTILE-IRON BODY AND BONNET, STEM NUT. 200-PSIG (1380 KPA) WORKING PRESSURE, MECHANICAL JOINT ENDS. B. VALVE BOXES: CAST-IRON BOX HAVING TOP SECTION AND COVER WITH LETTERING "WATER," BOTTOM SECTION WITH BASE OF SIZE TO FIT OVER VALVE AND BARREL APPROXIMATELY 5 INCHES (124 MM) IN DIAMETER, AND ADJUSTABLE CAST-IRON EXTENSION OF LENGTH REQUIRED FOR DEPTH OF BURY OF VALVE.

TAPPING VALVE, AND BOLTS AND NUTS. USE SLEEVE AND VALVE COMPATIBLE WITH TAPPING MACHINE. COORDINATE REQUIREMENTS WITH UTILITY PROVIDING WATERS.

This document and the ideas Incorporated herein, as an A. CLAMPS, STRAPS, AND WASHERS: ASTM A 506, STEEL. C. ROD COUPLINGS: ASTM A 197, MALLEABLE IRON.

Nielson Engineering, Inc. FAX (208) 234-0918 PHONE (208) 232-2577 2.8 IDENTIFICATION PART 3 - EXECUTION 3.1 EARTHWORK "EARTHWORK." SIZES INDICATED. "BASIC MECHANICAL MATERIALS AND METHODS." FITTINGS, AND BRAZED JOINTS. 3.4 VALVE APPLICATIONS WITH VALVE BOX. PRESSURE. REFER TO "PIPING SYSTEMS - COMMON REQUIREMENTS" ARTICLE FOR JOINING PIPING OF DISSIMILAR METALS. OPERATING PRESSURE.

A. METALLIC-LINED PLASTIC UNDERGROUND WARNING TAPES: POLYETHYLENE PLASTIC TAPE WITH METALLIC CORE, 6 INCHES (150 MM) WIDE BY 4 MILS (1 MM) THICK, SOLID BLUE IN COLOR WITH CONTINUOUSLY PRINTED CAPTION IN BLACK LETTERS "CAUTION — WATER LINE BURIED

B. NONMETALLIC PIPING LABEL: ENGRAVED PLASTIC-LAMINATE LABEL, FOR INSTALLATION ON MAIN ELECTRICAL METER PANEL; NOT LESS THAN 1 INCH (25 MM) BY 3 INCHES (75 MM), WITH CAPTION "CAUTION - THIS STRUCTURE HAS A NONMETALLIC WATER SERVICE."

A. EXCAVATION, TRENCHING, AND BACKFILLING ARE SPECIFIED IN DIVISION 2 SECTION

#### 3.2 SERVICE ENTRANCE PIPING

A. EXTEND WATER SYSTEM PIPING AND CONNECT TO WATER SUPPLY SOURCE AND BUILDING WATER DISTRIBUTION SYSTEMS AT OUTSIDE FACE OF THE BUILDING WALL IN LOCATIONS AND PIPE

1. TERMINATE WATER SYSTEM PIPING AT BUILDING WALL AND TERMINATE FIRE PROTECTION SYSTEM AT FLANGE INSIDE BUILDING, UNTIL BUILDING WATER SYSTEMS ARE INSTALLED. TERMINATE PIPING WITH CAPS, PLUGS, OR FLANGES AS REQUIRED FOR PIPING MATERIAL. MAKE CONNECTIONS TO BUILDING WATER SYSTEMS WHEN THOSE SYSTEMS ARE INSTALLED. B. WATER DISTRIBUTION SYSTEMS AND FIRE PROTECTION SYSTEMS ARE SPECIFIED IN DIVISION 15 SECTIONS. SLEEVES AND MECHANICAL SLEEVE SEALS ARE SPECIFIED IN DIVISION 15 SECTION

C. INSTALL RESTRAINED JOINTS FOR BURIED PIPING WITHIN 5 FEET (1.5 M) OF BUILDING. USE RESTRAINED-JOINT PIPE AND FITTINGS, THRUST BLOCKS, ANCHORS, TIE-RODS AND CLAMPS, AND OTHER SUPPORTS AT VERTICAL AND HORIZONTAL OFFSETS.

#### 3.3 PIPING APPLICATIONS

A. REFER TO PART 2 OF THIS SECTION FOR DETAILED SPECIFICATIONS FOR PIPE AND FITTINGS PRODUCTS LISTED BELOW. USE PIPE, TUBE, FITTINGS, AND JOINING METHODS ACCORDING TO THE FOLLOWING APPLICATIONS. PIPING IN PITS AND INSIDE BUILDING MAY BE JOINED WITH FLANGES OR COUPLINGS, INSTEAD OF JOINTS INDICATED, FOR GROOVED-END AWWA-SIZE PIPING. B. USE PIPE, TUBE, FITTINGS, AND JOINING METHODS ACCORDING TO FOLLOWING APPLICATIONS. 1. 2 INCHES (50 MM) AND SMALLER: COPPER TUBE, TYPE K (TYPE A), COPPER TUBE

2. 2-1/2 INCHES (65 MM) TO 3-1/2 INCHES (90 MM): COPPER TUBE, TYPE K (TYPE A), COPPER TUBE FITTINGS, AND BRAZED JOINTS.

3. OPTION FOR 2-1/2 INCHES (65 MM) TO 3-1/2 INCHES (90 MM): 3-INCH (80 MM) OR 4-INCH (100 MM) SIZE, DUCTILE-IRON PIPE, DUCTILE-IRON OR GRAY-IRON FITTINGS OR DUCTILE-IRON COMPACT FITTINGS, AND PUSH-ON OR MECHANICAL JOINTS. 4. 4 INCHES (100 MM) TO 8 INCHES (200 MM): CLASS 250, DUCTILE-IRON PIPE,

DUCTILE-IRON COMPACT FITTINGS, AND PUSH-ON OR MECHANICAL JOINTS. 5. 4 INCHES (100 MM) TO 8 INCHES (200 MM): AWWA C900, CLASS 200 POLYVINYL CHLORIDE (PVC) PLASTIC WATER PIPE, AWWA C900 PVC FITTINGS, AND GASKETED JOINTS. 6. 4 INCHES (100 MM) TO 8 INCHES (200 MM): AWWA C900, CLASS 200 POLYVINYL CHLORIDE

(PVC) PLASTIC PIPE, AWWA C110 OR AWWA C153, CLASS 200 MINIMUM, DUCTILE-IRON OR GRAY-IRON FITTINGS, AND MECHANICAL OR PUSH-ON JOINTS.

A. DRAWINGS INDICATE VALVE TYPES TO BE USED. WHERE SPECIFIC VALVE TYPES ARE NOT INDICATED, THE FOLLOWING REQUIREMENTS APPLY: 1. BURIED VALVES 3 INCHES (80 MM) AND LARGER: AWWA, GATE VALVES, NONRISING STEM,

#### 3.4 JOINT CONSTRUCTION

A. DUCTILE-IRON PIPING GASKETED JOINTS: CONSTRUCT JOINTS ACCORDING TO AWWA C600. B. FLANGED JOINTS: ALIGN FLANGES AND INSTALL GASKETS. ASSEMBLE JOINTS BY SEQUENCING BOLT TIGHTENING. USE LUBRICANT ON BOLT THREADS. C. COPPER TUBE AND FITTINGS. BRAZED JOINTS: CONSTRUCT JOINTS ACCORDING TO AWS

"BRAZING MANUAL," CHAPTER "PIPE AND TUBE." D. AWWA POLYVINYL CHLORIDE (PVC) PIPING GASKETED JOINTS: USE AWWA C900 JOINING MATERIALS. CONSTRUCT JOINTS WITH ELASTOMERIC SEALS AND LUBRICANT ACCORDING TO ASTM D 2774 OR ASTM D 3139 AND PIPE MANUFACTURER'S WRITTEN INSTRUCTIONS. E. DISSIMILAR MATERIALS PIPING JOINTS: CONSTRUCT JOINTS USING ADAPTERS THAT ARE COMPATIBLE WITH BOTH PIPING MATERIALS, OUTSIDE DIAMETERS, AND SYSTEM WORKING

### 3.5 PIPING SYSTEMS - COMMON REQUIREMENTS

A. GENERAL LOCATIONS AND ARRANGEMENTS: DRAWINGS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INDICATED LOCATIONS AND ARRANGEMENTS WERE USED TO SIZE PIPE AND CALCULATE FRICTION LOSS, EXPANSION, PUMP SIZING, AND OTHER DESIGN CONSIDERATIONS. INSTALL PIPING AS INDICATED EXCEPT WHERE DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS.

B. INSTALL COMPONENTS HAVING PRESSURE RATING EQUAL TO OR GREATER THAN SYSTEM

C. INSTALL PIPING FREE OF SAGS AND BENDS.

D. LOCATE GROUPS OF PIPES PARALLEL TO EACH OTHER, SPACED TO PERMIT VALVE SERVICING. E. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS. F. PIPING CONNECTIONS: EXCEPT AS OTHERWISE INDICATED, MAKE PIPING CONNECTIONS AS

1. INSTALL FLANGES, IN PIPING 2-1/2 INCHES (65 MM) AND LARGER, ADJACENT TO FLANGED VALVES AND AT FINAL CONNECTION TO EACH PIECE OF EQUIPMENT HAVING FLANGED PIPE

2. INSTALL DIELECTRIC FITTINGS TO CONNECT PIPING OF DISSIMILAR METALS.

3.6 PIPING INSTALLATION

A. WATER MAIN CONNECTION: TAP WATER MAIN WITH SIZE AND IN LOCATION AS INDICATED ACCORDING TO REQUIREMENTS OF WATER UTILITY. COORDINATE EXACT REQUIREMENT WITH WATER UTILITY.

1. INSTALL TAPPING SLEEVE AND TAPPING VALVE ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2. INSTALL TAPPING SLEEVE ON PIPE TO BE TAPPED. POSITION FLANGED OUTLET FOR GATE

3. INSTALL GATE VALVE ONTO TAPPING SLEEVE, COMPLY WITH AWWA C600. INSTALL VALVE WITH STEM POINTING UP AND WITH CAST-IRON VALVE box. 4. USE TAPPING MACHINE COMPATIBLE WITH VALVE AND TAPPING SLEEVE; CUT HOLE IN MAIN. REMOVE TAPPING MACHINE AND CONNECT WATER SERVICE PIPING. B., COMPLY WITH REQUIREMENTS OF NFPA 24 FOR MATERIALS AND INSTALLATION. C. INSTALL DUCTILE-IRON PIPE AND DUCTILE-IRON AND CAST-IRON FITTINGS ACCORDING TO

AWWA C600. 1. INSTALL POLYETHYLENE ENCASEMENT ACCORDING TO AWWA C105 ON DUCTILE-IRON PIPE, DUCTILE-IRON AND CAST-IRON PIPE FITTINGS, AND FERROUS COUPLINGS WHERE SPECIFIED. D. INSTALL COPPER TUBE AND WROUGHT-COPPER FITTINGS ACCORDING TO CDA NO. 404/0 "COPPER TUBE HANDBOOK."

E. INSTALL AWWA POLYVINYL CHLORIDE (PVC) PLASTIC PIPE ACCORDING TO AWWA M23. F. BURY PIPING AT MINIMUM DEPTH OF 36 INCHES (1 M) BELOW FINISHED GRADE AND NOT LESS THAN 18 INCHES (0.5 M) BELOW AVERAGE LOCAL FROST DEPTH. G. TUNNELING: INSTALL PIPE UNDER STREETS OR OTHER OBSTRUCTIONS THAT CANNOT BE DISTURBED BY TUNNELING, JACKING, OR A COMBINATION OF BOTH.

#### 3.7 ANCHORAGE INSTALLATION

A. ANCHORAGES: INSTALL ANCHORAGES FOR TEES, PLUGS AND CAPS, BENDS, CROSSES, VALVES, AND HYDRANT BRANCHES. INCLUDE ANCHORAGES FOR THE FOLLOWING PIPING SYSTEMS: 1. GASKETED-JOINT, DUCTILE-IRON PIPING: ACCORDING TO AWWA C600. 2. GASKETED-JOINT, POLYVINYL CHLORIDE (PVC) PIPING: ACCORDING TO AWWA M23.

#### 3.8 VALVE INSTALLATION

A. GENERAL APPLICATION: USE MECHANICAL-JOINT-END VALVES FOR 3-INCH (80 MM) AND LARGER BURIED INSTALLATION. USE THREADED— AND FLANGED—END VALVES FOR INSTALLATION IN PITS AND INSIDE BUILDING. USE NONRISING STEM UL/FM GATE VALVES FOR INSTALLATION WITH INDICATOR POSTS. USE BRONZE CORPORATION STOPS AND VALVES, WITH ENDS COMPATIBLE WITH PIPING, FOR 2-INCH (50 MM) AND SMALLER INSTALLATION. B. AWWA-TYPE GATE VALVES: COMPLY WITH AWWA C600. INSTALL BURIED VALVES WITH STEM POINTING UP AND WITH CAST-IRON VALVE BOX.

#### 3.9 IDENTIFICATION INSTALLATION

A. INSTALL CONTINUOUS PLASTIC UNDERGROUND WARNING TAPE DURING BACK-FILLING OF TRENCH FOR UNDERGROUND WATER SERVICE PIPING. LOCATE 6 INCHES (150 MM) TO 8 INCHES (200 MM) BELOW FINISHED GRADE, DIRECTLY OVER PIPING. B. ATTACH NONMETALLIC PIPING LABEL PERMANENTLY TO MAIN ELECTRICAL METER PANEL.

#### 3.10 FIELD QUALITY CONTROL

A. DO NOT ENCLOSE, COVER, OR PUT INTO OPERATION WATER DISTRIBUTION PIPING SYSTEM UNTIL IT HAS BEEN INSPECTED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION. B. PIPING TESTS: CONDUCT PIPING TESTS BEFORE JOINTS ARE COVERED AND AFTER THRUST BLOCKS HAVE HARDENED SUFFICIENTLY. FILL PIPELINE 24 HOURS PRIOR TO TESTING AND APPLY TEST PRESSURE TO STABILIZE SYSTEM. USE ONLY POTABLE WATER. C. HYDROSTATIC TESTS: TEST AT NOT LESS THAN 1-1/2 TIMES WORKING PRESSURE OR 200

PSI MINIMUM FOR 2 HOURS. 1. INCREASE PRESSURE IN 50-PSIG (350 KPA) INCREMENTS AND INSPECT EACH JOINT BETWEEN INCREMENTS. HOLD AT TEST PRESSURE FOR 1 HOUR; DECREASE TO 0 PSIG (0 KPA). SLOWLY INCREASE AGAIN TO TEST PRESSURE AND HOLD FOR 1 MORE HOUR. MAXIMUM ALLOWABLE

### LEAKAGE IS 2 QUARTS (1.89 L) PER HOUR PER 100 JOINTS. REMAKE LEAKING JOINTS WITH NEW MATERIALS AND REPEAT TEST UNTIL LEAKAGE IS WITHIN ABOVE LIMITS.

#### 3.11 CLEANING

A. CLEAN AND DISINFECT WATER DISTRIBUTION PIPING AS FOLLOWS: 1. PURGE NEW WATER DISTRIBUTION PIPING SYSTEMS AND PARTS OF EXISTING SYSTEMS THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED PRIOR TO USE. 2. USE PURGING AND DISINFECTING PROCEDURE PRESCRIBED BY AUTHORITY HAVING

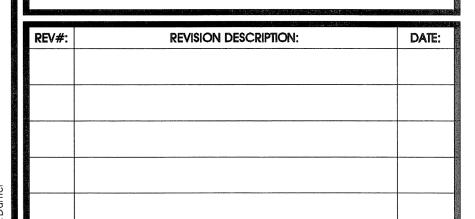
JURISDICTION OR, IF METHOD IS NOT PRESCRIBED BY THAT AUTHORITY, USE PROCEDURE DESCRIBED IN AWWA C651 OR AS DESCRIBED BELOW: A. COMPLY WITH NFPA 24 FOR FLUSHING OF PIPING. FLUSH PIPING SYSTEM WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT POINTS OF OUTLET. B. FILL SYSTEM OR PART OF SYSTEM WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 50 PARTS PER MILLION OF CHLORINE. ISOLATE (VALVE OFF) SYSTEM OR PART THEREOF AND

ALLOW TO STAND FOR 24 HOURS. C. DRAIN SYSTEM OR PART OF SYSTEM OF PREVIOUS SOLUTION AND REFILL WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 200 PARTS PER MILLION OF CHLORINE; ISOLATE AND ALLOW TO STAND FOR 3 HOURS. D. FOLLOWING ALLOWED STANDING TIME, FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL

CHLORINE DOES NOT REMAIN IN WATER COMING FROM SYSTEM. E. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITY HAVING JURISDICTION. REPEAT PROCEDURE IF BIOLOGICAL EXAMINATION MADE BY AUTHORITY SHOWS EVIDENCE OF

B. PREPARE REPORTS FOR PURGING AND DISINFECTING ACTIVITIES.

END OF SECTION 02510





This document and the ideas incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

Professional Seal: OR OFESSIO No.8297 🔊 GORDON A. NIELSON

Copyright © 2006 SKYLINE A/E/S, INC.

BIG CREEK CAMPGROUND RESTROOMS BEAR LAKE STATE PARK

Sheet Title: **PLUMBING SPECIFICATIONS** 

Drawn By: Project Numbers: Drawing Type: DFCM: 06190510 DGB Designed By: Sheet Number: MAY 2006 Sheet Scale: Reviewed By: 1/4" = 1'-0"

OWNERSHIP OF DOCUMENTS

120 North Twelfth Avenue

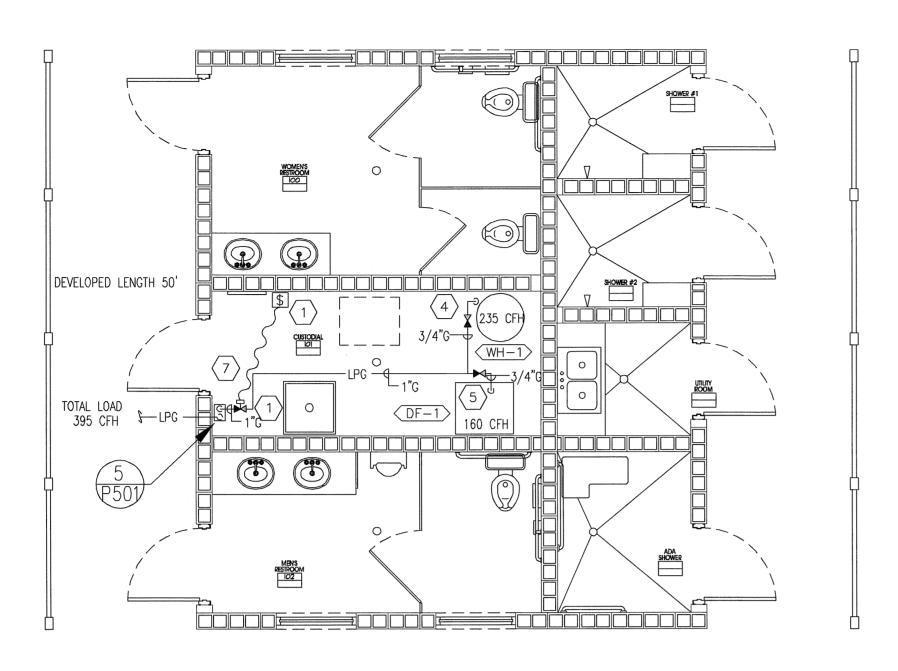
Pocatello, Idaho 83201

PHONE (208) 232-2577

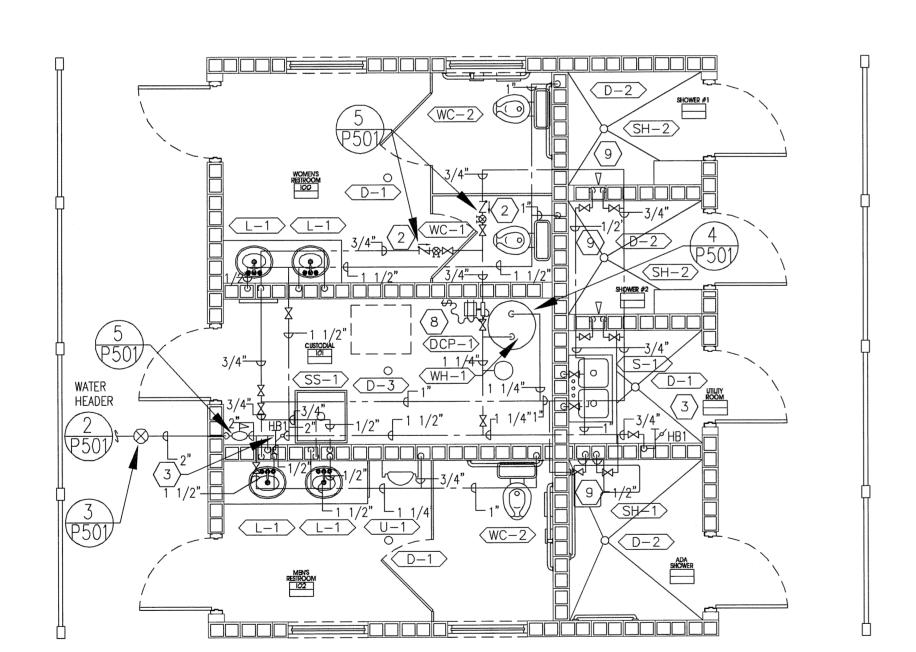
This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC. Unauthorized use will be prosecuted to the fullest extent of the Law.

Nielson Engineering, Inc. PHUNE (200) 232-237 FAX (208) 234-0918

Consulting Engineers

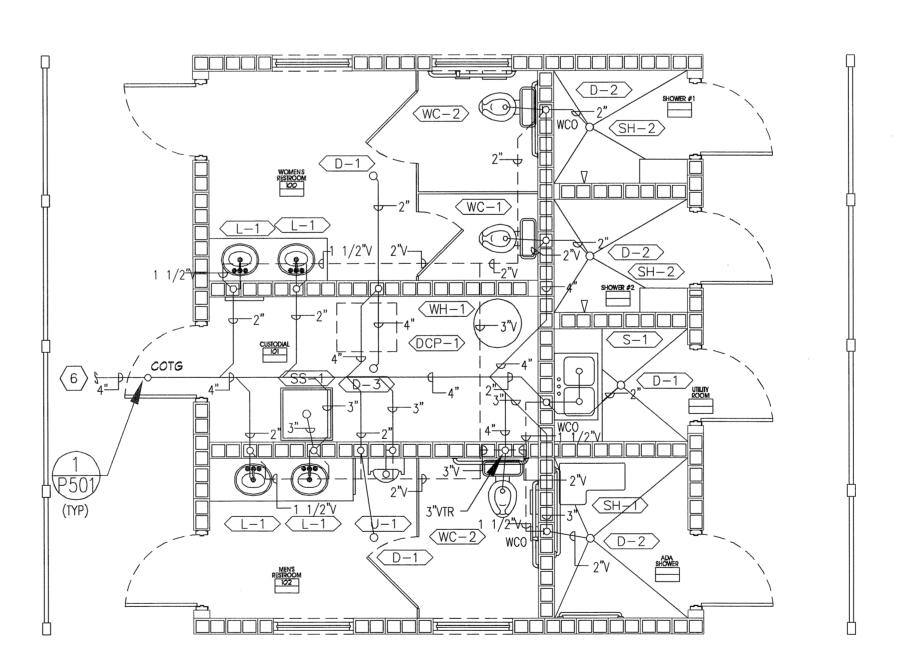


RESTROOM GAS PIPING PLAN SCALE: 1/4"=1'-0"



FINISHED FLOOR ELEVATION = 5926.56





RESTROOM WATER PLAN

SCALE: 1/4"=1'-0"





120 North Twelfth Avenue Pocatello, Idaho 83201

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used, in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC. Unauthorized use will be prosecuted to the fullest extent of the Law.

Copyright © 2006 by: NIELSON ENGINEERING, INC.

- SCOTTS INSTRUMENTS MODEL 4888 LIQUEFIED PETROLEUM GAS TRANSMITTER; 24 VOLT, 5 AMP POWER SUPPLY, SHALL BE INSTALLED 0' 3" ABOVE FINISHED FLOOR LEVEL. SENSOR SHALL BE EQUIPPED WITH DRY CONTACT FOR ACTUATING SOLENOID VALVE. UPON DETECTION OF LPG LEAK THE SENSOR SHALL SEND A SIGNAL CLOSING THE SOLENOID VALVE. SOLENOID VALVE SHALL BE NORMALLY CLOSED.
- 2. BALANCE FLOW SETTER TO 0.5 GPM.
- 3. 3/4" LINE WITH SHUTOFF VALVE TO HOSE BIBB.
- 4. 3/4 LPG GAS LINE DOWN TO WATER HEATER.
- 5. 3/4" LPG GAS LINE DOWN TO FURNACE. 6. 2" CW PIPING UNDERGROUND TO WATER HEADER
- 7. 1/2" LPG GAS LINE TO LPG SOLENOID VALVE. DOMESTIC CIRCULATING PUMP TIMER. SEE DCP SCHEDULE.
- THE P.C. SHALL PROVIDE INDIVIDUAL SHUTOFF VALVES ON EACH SUPPLY OF WATER SUPPLIES TO EACH SHOWER VALVE. PROVIDE A VALVE IN BOTH SUPPLY WATER LINES TO EACH SHOWER SO A COMPRESSOR CAN BE CONNECTED TO THESE LINES TO BLOW THEM OUT. EACH SHOWER SHALL BE CAPABILITY OF BEING WINTERIZED AND SHUTDOWN DURING THE WINTER MONTHS. PIPE A DRAIN WITH A SHUTOFF ON THE BOTTOM OF EACH OF THE SHOWER VALVE TO THE MECHANICAL ROOM TO DRAIN EACH SHOWER VALVE. ROUTE THIS PIPING IN THE WALL OVER TO THE MECHANICAL ROOM DRAIN. PROVIDE ACCESS TO THESE DRAIN VALVES.

### GENERAL NOTES

- CONTRACTOR SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERABLE SYSTEM. PIPING IS SCHEMATIC AND DOES NOT SHOW ALL ELBOYS ON DRAWING. ALL PIPING SHALL BE COORDINATED WITH DUCTWORK AND OTHER TRADES PRIOR TO INSTALLATION.
- SEE SITE UTILITIES FOR CONTINUATION OF ALL UNDERGROUND PIPING 5 FEET FROM THE BUILDING.
- ALL PIPING AND VALVES SHALL BE INSTALLED UNDER CEILING IN CUSTODIAL 0111, 0202 AND MACHANICAL 0110 FOR ACCESS. PIPING SERVING ALL OTHER AREAS OF THE BUILDING SHALL RISE UP INTO THE ATTICA SPACE.
- DO NOT INSTALL PIPING OVER ELECTRICAL PANELS IN MECHANICAL ROOMS.

REV#:	REVISION DESCRIPTION:	DATE:



This document and the ideas Incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

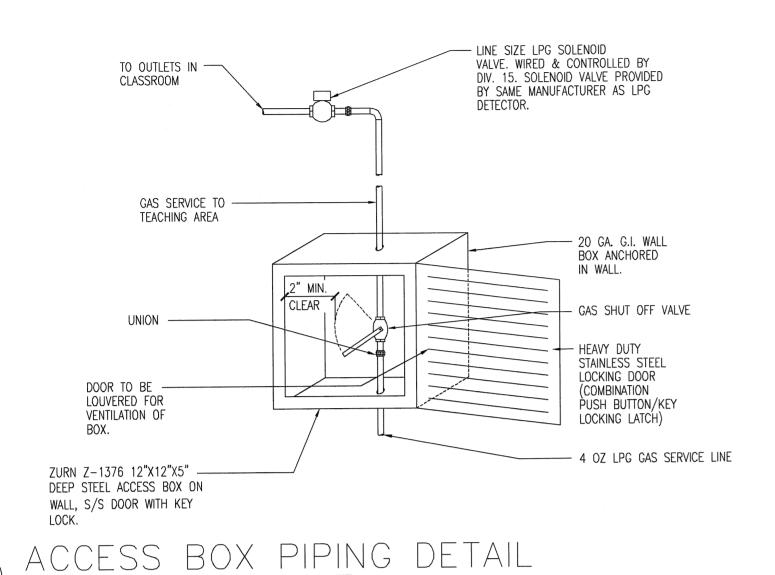
Copyright © 2006 SKYLINE A/E/S, INC



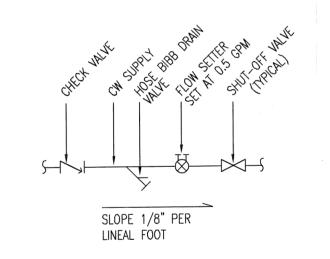
BIG CREEK CAMPGROUND RESTROOMS BEAR LAKE STATE PARK

RESTROOM PLUMBING **WASTE & WATER PLAN** 

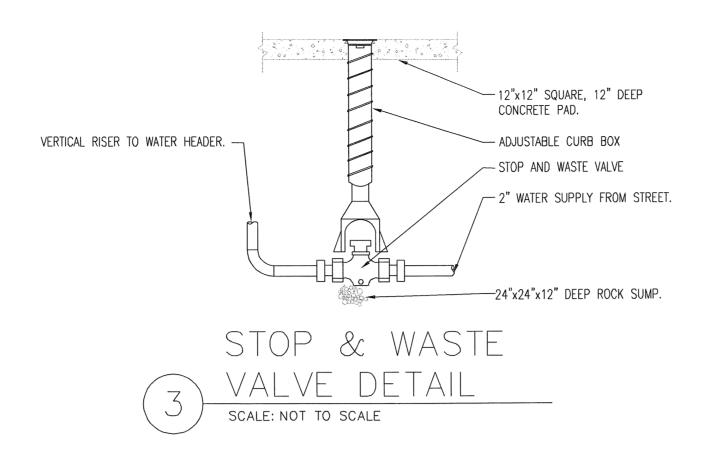
Drawn By:	Project Numbers:	Drawing Type:
DGB	DFCM: 06190510 NEI: 0635	
Designed By:	Date:	Sheet Number:
DGB	MAY 2006	
Reviewed By:	Sheet Scale:	
WAM	1/4" = 1'-0"	of

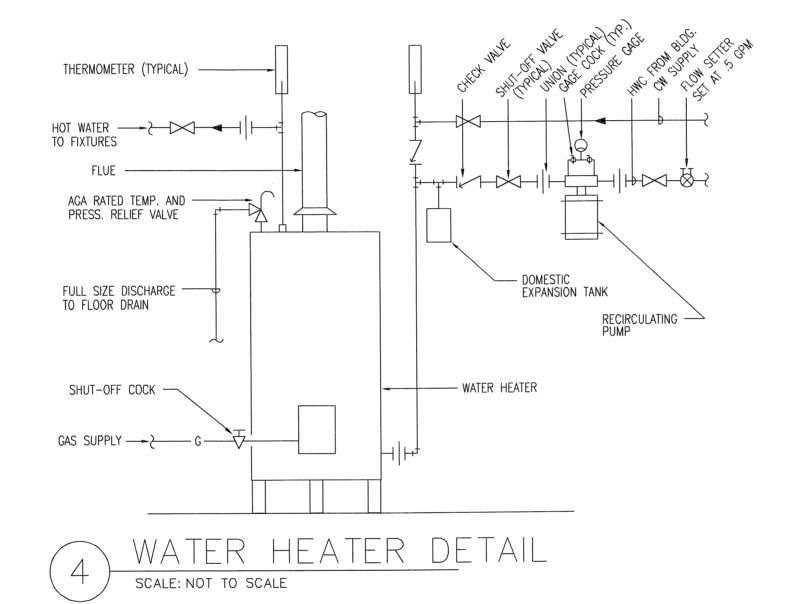


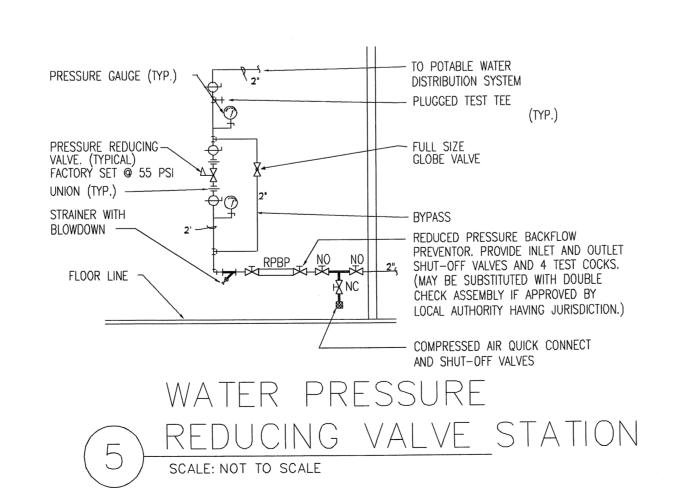
SCALE: NOT TO SCALE

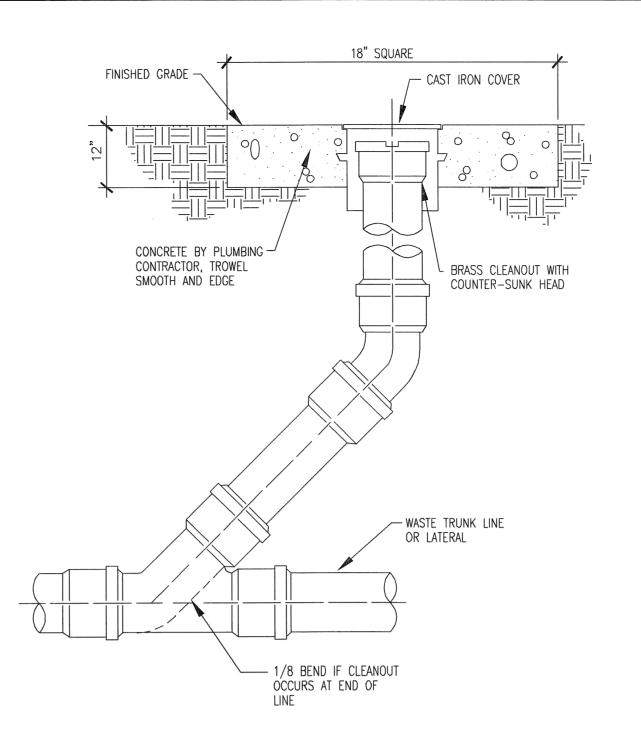


CHECK VALVE DETAIL SCALE: NOT TO SCALE

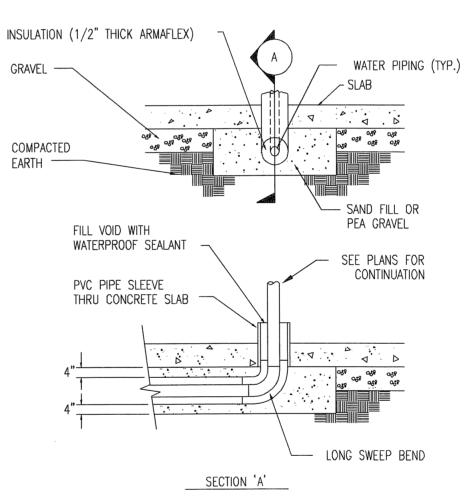






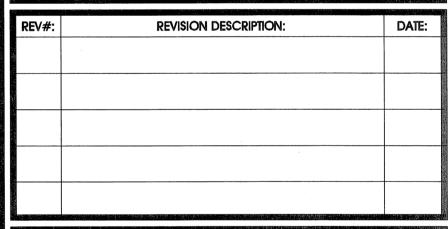


CLEANOUT TO GRADE DETAIL SCALE: NOT TO SCALE



SAND FILL OR PEA GRAVEL TO BE A MINIMUM OF 4" AROUND PIPES. MATERIAL SHALL BE HAND TAMPED, RODDED, OR LIGHTLY COMPACTED DURING INSTALLATION. CARE SHOULD BE TAKEN NOT TO DEFORM OR OTHERWISE DAMAGE THE PIPING.

UNDER-SLAB WATER PIPING SCALE: NOT TO SCALE





This document and the ideas Incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

Copyright © 2006 SKYLINE A/E/S, INC.

Project Title:

Professional Seal: No.8297 GORDON A. NIELSON

BIG CREEK CAMPGROUND RESTROOMS BEAR LAKE STATE PARK

Sheet Title: **PLUMBING DETAILS** 

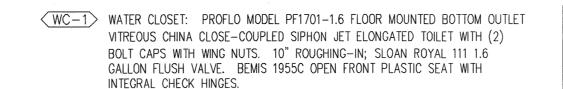
Project Numbers: DFCM: 06190510 NEI: 0635 Drawing Type: Drawn By: DGB Sheet Number: DGB MAY 2006 P501 Sheet Scale: Reviewed By: 1/4" = 1'-0"

120 North Twelfth Avenue Pocatello, Idaho 83201 Nielson Engineering, Inc. PHONE (208) 232-2577 FAX (208) 234-0918

Consulting Engineers

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used, in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC. Unauthorized use will be prosecuted to the fullest extent of the Law.



WC-2 ACCESSIBLE WATER CLOSET: PROFLO MODEL PF1703-1.6 FLOOR MOUNTED BOTTOM OUTLET VITREOUS CHINA CLOSE-COUPLED SIPHON JET ELONGATED TOILET WITH (2) BOLT CAPS WITH WING NUTS. 10" ROUGHING-IN; SLOAN ROYAL 111 1.6 GALLON FLUSH VALVE; VALVE SHALL BE LOCATED ON WIDE SIDE OF STALL. BEMIS 1955C OPEN FRONT PLASTIC SEAT WITH INTEGRAL CHECK HINGES.

 Lavatory: PROFLO 5504 20"X18" VITREOUS CHINA, WALL HUNG LAVATORY WITH 4" FAUCET CENTERS, DRILLING FOR FLOOR MOUNTED CARRIERS WITH CONCEALED ARM BRACKETS; DEARBORN OPEN GRID STRAINER; ZURN MODEL Z-6912-C-CP4-TMV-1 BATTERY OPERATED SENSOR FAUCET WITH 2.5 GPM VANDAL RESISTANT AERATOR; INTEGRAL THERMOSTATIC MIXING VALVE, BRASSCRAFT HTCR-19 ZC STOPS, ESCUTCHEONS, S. S. SUPPLIES, & 1 1/4 17GA. P-TRAP. PROVIDE A J. R. SMITH 0700 WALL CARRIER.

 $\langle U-1 \rangle$  ACCESSIBLE URINAL: PROFLO MODEL PF1810-1.0-3/4" VITREOUS CHINA SIPHON JET, WALL HUNG URINAL, 3/4" TOP SPUD INLET; 2" I.P.S. OUTLET; SLOAN ROYAL 186-1.0 FLUSH VALVE.

S-1 COUNTER SINK: (2) COMPARTMENT SINK: ELKAY LR3319 18 GA. TYPE 302 STAINLESS STEEL (2) COMPARTMENT SINK; 33" X 19" X 8" DEEP; SELF RIMMING; (3) FAUCET HOLES ON 4" CENTERS; (2) LK-35 DUO STRAINER; MOEN CHATEAU MODEL 67425 KITCHEN FAUCET WITH SINGLE LIFT HANDLE AND VANDAL RESISTANT AERATOR, BRASSCRAFT HTCR-19 ZC STOPS, ESCUTCHEONS, S. S. SUPPLIES, 1 1/2" 17GA. P-TRAP, AND DEARBORN 17GA. EOL CONTINUOUS WASTE.

SS-1 MOP SINK: PROFLO MODEL PFMB260024 MOP SINK; 24" X 24" X 10" HIGH WITH PLAIN CURB. MOP SINK SHALL BE ONE PIECE MOLDED COMPOSITE BASIN WITH PVC DRAIN BODY AND STAINLESS STEEL DOME STRAINER/LINT BASKET. FIAT MODEL 830AA SERVICE SINK FAUCET WITH HEAVY DUTY FITTING WITH 1/2" INLETS, 8" CENTER TO CENTER WITH ADJUSTABLE, THREADED FLANGES; EQUIPPED WITH INTEGRAL STOPS, FOUR-ARM HANDLES, THREAD ON OUTLET, CHROME PLATE; EQUIPPED WITH 30" RUBBER HOSE ON SPOUT OUTLET AND CHROME PLATED WALL HOOK.

SH-1 ACCESSIBLE SHOWER VALVE: MOEN THERMOSTATIC MIXING PRESSURE ACTUATED SHOWER MIXER FOR SHOWER INSTALLATION WITH CONCEALED PIPING, 1/2" INLETS, 1/2" TOP OUTLET, 1/2" CHROME PLATED METAL CONSTRUCTION, PRESSURE BALANCING CYCLE VALVE, HAND HELD SHOWER EQUIPPED WITH 30" SLIDE BAR, DROP ELL, WALL BRACKET, VACUUM BREAKER, 69" METAL HOSE AND HARDWARE, SUPPLIED WITH VANDAL RESISTANT SCREWS; INTEGRAL THERMOSTATIC MIXING VALVE. FLOW RATE: 2.5 GPM. ALL EXPOSED PARTS CHROMIUM PLATED.

SH-2> SHOWER VALVE: MOEN MODEL THERMOSTATIC MIXING ACTUATED SHOWER MIXER FOR SHOWER INSTALLATION WITH CONCEALED PIPING, 1/2" INLETS, 1/2" TOP OUTLET, 1/2" CHROME PLATED METAL CONSTRUCTION, PRESSURE BALANCING CYCLE VALVE, HAND HELD SHOWER EQUIPPED WITH VANDAL RESISTANT FIXED SPRAY; INTEGRAL THERMOSTATIC MIXING VALVE. FLOW RATE: 2.5 GPM ALL EXPOSED PARTS CHROMIUM PLATED.

D-1 FLOOR DRAIN: SMITH FIGURE 2005Y02-B06NB-P050 CAST IRON BODY AND FLASHING COLLAR WITH PROTECTIVE CAP AND SQUARE NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED SQUARE HOLE GRATE, AND TRAP PRIMER CONNECTION.

D-2 SHOWER DRAIN: SMITH FIGURE 2005Y02-A OR B06NB - A OR B CAST IRON BODY AND FLASHING COLLAR WITH PROTECTIVE CAP AND NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED SQUARE HOLE GRATE. PROVIDE SQUARE STRAINERS IN FLOORS WITH SQUARE PATTERNS, PROVIDE ROUND STRAINERS ELSEWHERE. PROVIDE AND INSTALL 40 MIL VINYL SHOWER PAN LINER. LINER SHALL BE 30" SQUARE.

D-3 MECHANICAL DRAIN: SMITH FIGURE 2005Y04-B06NB-P050 CAST IRON BODY AND FLASHING COLLAR WITH PROTECTIVE CAP AND SQUARE NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED SQUARE HOLE GRATE, AND TRAP PRIMER CONNECTION.

	GAS FIRED DOMESTIC HOT WATER HEATER SCHEDULE										
SYMBOL	MANUFACTURER & MODEL NO.	TANK CAPACITY GALLONS	FUEL TYPE	INPUT MBH (1)	HP	VOLTS/ PHASE/ CYCLE	RECOVERY RATE GPH (1)	WATER TEMP IN/OUT	STACK SIZE	COMMENTS	
WH 1	AMERICAN DCG 32-80T250-6P	80	PROPANE	235/184	-/	_	228/179	45/140	6"	(2)	DET 1

(1) 0 FT. ELEVATION/ 6000 FT. ELEVATION.

(2) SET TEMPERATURE AT 140°.

	DOMESTIC WATER CIRCULATE PUMP SCHEDULE								
SYMBOL	MANUFACTURER & MODEL NO.	GPM	HEAD FT.	H.P.	RPM	VOLTS/PHASE/ CYCLE	AREA SERVED	COMMENTS	
DCP 1	BELL & GOSSETT SERIES PL30	1	7.0	1/12	2650	120/1/60	SHOWERS LAVATORIES	(1)(2)	

(1) ALL BRONZE CONSTRUCTION.

(2) EQUIPPED WITH 24 HOUR, 7 DAY PROGRAMMABLE TIMER.

DON	MESTIC HO	T WATER	EXPA	NSION	TANK
SYMBOL	MANUFACTURERS	MODEL NO.	GALLONS ACCEPTANCE VOLUME	GALLONS TOTAL VOLUME	INITIAL FILL PRESSURE
DET 1	AMTROL	ST-12-C	0.5	4.7	40 PSIG

PLUMBING FIXTURE SCHEDULE								
FIX. NO.	FIXTURE	WASTE	TRAP	VENT	HW	CW	NOTES	
WC-1)	WATER CLOSET	4"	_	2"	_	1"	FLOOR MOUNTED, FLUSH VALVE	
WC-2	WATER CLOSET (ADA)	4"	_	2"	_	1"	FLOOR MOUNTED, FLUSH VALVE	
(L-1)	LAVATORY (ADA)	1 1/2"	1 1/4"	1 1/2"	1/2"	1/2"	COUNTER BATTERY OPERATED	
U-1	URINAL (ADA)	2"	_	1 1/2"	_	3/4"	WALL HUNG FLUSH VALVE	
S-1	SINK	2"	1 1/2"	1 1/2"	1/2"	1/2"	STAINLESS STEEL SCULLERY	
(SS-1)	JANITOR SINK	3"	3"	2"	1/2"	1/2"	FLOOR MOUNTED	
SH-1	SHOWER (ADA)	_	_	_	1/2"	1/2"	ACCESSIBLE, SLIDE BAR HANDLE	
SH-2	SHOWER	_	_	_	1/2"	1/2"	FIXED HEAD	
D-1	FLOOR DRAIN	2"	2"	1 1/2"	_	_	RESTROOMS	
D-2	FLOOR DRAIN	2"	2"	1 1/2"	_	_	SHOWER	
D-3	FLOOR DRAIN	4"	4"	2"	_	. –	MECHANICAL	

REVISION DESCRIPTION: DATE:



This document and the ideas Incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.



Project Title:

BIG CREEK CAMPGROUND RESTROOMS

Sheet Title: **PLUMBING SCHEDULES** 

Project Numbers: DFCM: 06190510 NEI: 0635 Drawn By: Drawing Type: Sheet Number: MAY 2006 Reviewed By: Sheet Scale: 1/4" = 1'-0"

120 North Twelfth Avenue Pocatello, Idaho 83201 Nielson Engineering, Inc. PHONE (208) 232-2577 FAX (208) 234-0918

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used, in whole or in part,for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC. Unauthorized use will be prosecuted to the fullest extent of the Law.

Consulting Engineers

#### ABBREVIATIONS GENERAL TAG CFM ACCESS DOOR (X-1) PLUMBING FIXTURE CALLOUT (XX) EQUIPMENT CALLOUT AIR COND AIR CONDITION(-ING,-ED) AIR HANDLING UNIT DIFFUSER/GRILLE CALLOUT AIR PRESSURE DROP ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS DETAIL CALLOUT SECTION CALLOUT BALANCING DAMPER BRAKE HORSE POWER BTU BRITISH THERMAL UNIT BTUH BTU/HOUR CUBIC FEET PER HOUR KEYNOTE CALLOUT REVISION TAG CFM CUBIC FEET PER MINUTE COMP COMPONENT COND CONDENS(-ER,\_ING,-ATION) CLG COOLING CONTROL VALVE CV DUCTWORK CW COLD WATER DIA DIAMETER DISCH DISCHARGE DEPTH OR DEEP SINGLE LINE INSIDE DIAMETER OD OUTSIDE DIAMETER DB DRY BULB TEMPERATURE EXISTING RECTANGULAR SUPPLY ÈÉR ENERGY EFFICIENCY RATIO DUCT UP EFF **EFFICIENCY** EG ETHYLENE GLYCOL ELEC ELECTRIC RECTANGULAR SUPPLY ELEV ELEVATION DUCT DOWN ENT ENTERING ENTERING WATER TEMPERATURE EVAPORAT(-E,-ING,-ED,-OR)EVAP RECTANGULAR RETURN EXT EXTERNAL DUCT UP FUTURE FAHRENHEIT FLEXIBLE CONNECT(-OR,-ION) RECTANGULAR RETURN FIRE DAMPER DUCT DOWN FLA FULL LOAD AMPS FPI FINS PER INCH FPM FEET PER MINUTE RECTANGULAR EXHAUST FEET PER SECOND DUCT UP FIRE SMOKE DAMPER FEET RECTANGULAR EXHAUST NATURAL GAS GAL GALLON(S) DUCT DOWN GPH GALLONS PER HOUR GPM GALLONS PER MINUTE HEAD ROUND DUCT UP MERCURY HOUR HEIGHT HTG HEATING ROUND DUCT DOWN HORSE POWER HW HOT WATER HERTZ(FREQUENCY) INCH 90° RECTANGULAR ELBOW KILOWATT ΚW WITH TURNING VANES LATENT HEAT LH LEAVING AIR TEMPERATURE POUNDS LOCKED ROTOR AMPS 90° RADIUS ELBOW LEAVING LEAVING WATER TEMPERATURE R = 1.5LENGTH MAXMAXIMUM DUCT SIZE OR SHAPE THOUSAND BTU PER HOUR MINIMUM CIRCUIT AMPS MCA TRANSITION MANUFACTURER MFR MINIMUM OPPOSED BLADE BALANCING NORMALLY OPEN NUMBER DAMPER (O.B.D.) IN RECT DUCT NOISE CRITERIA NOT APPLICABLE N/A BUTTERFLY BALANCING NOT IN CONTRACT DAMPER IN ROUND DUCTS NET POSITIVE SUCTION HEAD NPSH NTS NOT TO SCALE OUNCE OUTSIDE AIR COMBINATION TEE PROPYLENE GLYCOL PHASE PPM PARTS PER MILLION SPLITTER DAMPER POUNDS PER SQUARE FOOT PSF POUNDS PER SQUARE INCH PSI PSI ABSOLUTE PSIA SQUARE OR RECTANGULAR PSIG PSI GAUGE CEILING DIFFUSER **PRESS** PRESSURE PRESSURE DROP OR DIFFERENCE PDSTATIC PRESSURE RECIRC RECIRCULATE SIDEWALL REGISTER RETURN AIR SUPPLY OR RETURN RADIATOR RAD REFRIGERATION REFR REQUIRED REQR ROUND FLEXIBLE DUCT RATED --- AMPS

REVOLUTIONS PER MINUTE

STANDARD CUBIC FEET PER MINUTE

RAINWATER

SEA LEVEL

SQUARE STANDARD

STEAM

SUPPLY

THERMAL

TOTAL

TIME

VOLT

VACUUM

VELOCITY

VERTICAL

VOLUME

WATER

WEIGHT

YEAR

SUPPLY AIR

TEMPERATURE

THERMOSTAT

TOTAL HEAT

SOFT COLD WATER

SHADING COEFFICIENT

SAFETY FACTOR

SENSIBLE HEAT

SPECIFICATION(S)

STATIC PRESSURE

TEMP. DROP OR DIFF.

THERMAL RESISTANCE

VARIABLE AIR VOLUME

VARIABLE FREQUENCY DRIVE

WATER PRESSURE DROP

VENT, VENTILATION

WATER COLUMN

WATER GAUGE

WET BULB TEMP.

RPM

SCFM

SCW

STD STM

SPLY

TEMP

THERM

TOT

VAC

VAV

VENT VERT

VFD

VOL

WPD

WTR

TSTAT

SPECS(S)

RW

FLEXIBLE CONNECTION \_\_\_\_\_\_

DUCT CHANGE IN ELEVATION

DUCT ACCESS DOOR

RETURN

GRILLE

EXHAUST

GRILLE

### SYMBOLS

SHUT OFF VALVE	——————————————————————————————————————
GATE VALVE	——————————————————————————————————————
CHECK VALVE	
GLOBE VALVE	
BALL VALVE	Ф
RELIEF VALVE	<u></u>
PRESSURE REDUCING VALVE	
BUTTERFLY VALVE	
SOLENOID VALVE	
ANGLE VALVE	A
BALANCING OR PLUG COCK	Ť 
FLOW SETTER	——₩ ——₩
	$\otimes$
EXPANSION VALVE (REFRIG.)	
GAS COCK	V □ AV
AUTOMATIC AIR VENT	
MANUAL AIR VENT	
GAUGE COCK	<b>∳</b> ī
STRAINER	
FLEXIBLE CONNECTION	
PRESSURE GAUGE	Ŷ
THERMOMETER	Ц
VICTUALIC COUPLING	<u>-</u>
REDUCER CONCENTRIC	$\overline{}$
REDUCER ECCENTRIC	V
REFRIGERANT SITE GLASS	
REFRIGERANT STRAINER	
REFRIGERANT FILTER DRIER	
90° ELBOW UP	
90° ELBOW DOWN	
90° TEE UP	
90° TEE DOWN	
UNION	 
CAPPED PIPE	
THERMOSTAT	(T)
TEMPERATURE SENSOR	<u>(s)</u>
WALL HYDRANT	———— W.H.
HOSE BIBB	— Н.В.
CLEANOUT TO GRADE	
FLOOR CLEANOUT	<u> </u>
WALL CLEANOUT	——————————————————————————————————————
1/2 GRATE	ı ı
3/4 GRATE	
FULL GRATE	
NEW CONNECTION POINT	

TO EXISTING

### PIPING

### HVAC

------ RL ------REFRIGERANT LIQUID ------ RS ------REFRIGERANT SUCTION DRAIN LINE

### PLUMBING

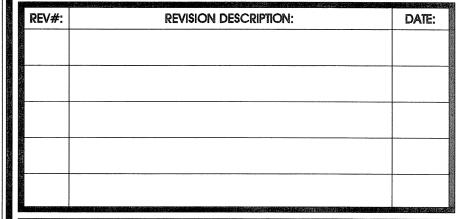
SOIL, WASTE-ABOVE GRADE	
SOIL, WASTE-BELOW GRADE	
VENT	
COLD WATER	
HOT WATER	
HOT WATER CIRCULATE	
PROPANE	——— LPG ———
VENT THRU ROOF (VTR)	
NON POTABLE WATER	<i>+</i>
EXISTING PIPE	——— (E) ———
EXISTING PIPE TO BE REMOVED	<b>чинини</b> (Е) <b>чинини</b>

### MECHANICAL GENERAL NOTES

- 1. ALL CEILING DIFFUSERS SHOWN AS SUCH ARE CD-1, CFM AS NOTED, UNLESS OTHERWISE NOTED. REFER TO DETAIL 1/M201.
- 2. ALL CEILING RETURN GRILLES SHOWN AS SUCH ARE RG-1 UNLESS OTHERWISE NOTED. PROVIDE SOUND BOOT PER DETAIL 1/M201.
- 3. ALL CEILING EXHAUST GRILLES SHOWN AS SUCH ARE EG-1, CFM AS NOTED, UNLESS OTHERWISE CFM NOTED.
- 4. DO NOT ROUTE DUCTS AND PIPES ABOVE ELECTRICAL PANELS. ALL ELECTRICAL PANELS MUST HAVE CLEAR ACCESS SPACE IN FRONT OF PANEL 4'-0" DEEP AND 6'-6" HIGH. DO NOT ROUTE DUCTS AND PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.
- 5. COORDINATE EXACT LOCATIONS OF CEILING DIFFUSERS AND GRILLES WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- 6. ALL DUCT DIMENSIONS ARE OUTSIDE DIM. FOR RECTANGULAR DUCTS. INSIDE DIM. FOR ROUND AND OVAL DUCTS UNLESS OTHERWISE NOTED.
- 7. PROVIDE CEILING ACCESS PANELS AS REQUIRED WHERE MECHANICAL EQUIPMENT, VALVES, VAV BOXES, FIRE DAMPERS, ETC. ARE LOCATED ABOVE INACCESSIBLE CEILINGS.
- 8. STEEL ROOF DECK SHALL NOT BE USED TO SUPPORT LOADS FROM PIPING, DUCTWORK OR EQUIPMENT, UNLESS NOTED OTHERWISE. HANGER LOADS LESS THAN 50 LBS. MAY BE HUNG FROM THE STEEL ROOF DECK IN CASES WHEN HANGING FROM THE STEEL ROOF DECK CANNOT BE AVOIDED; THE ATTACHMENT METHOD MUST DISTRIBUTE THE LOAD ACROSS THE DECK AS APPROVED BY THE STRUCTURAL ENGINEER.

### PLUMBING GENERAL NOTES

- 1. INSTALL WATER, GAS, VENT AND ROOF DRAIN PIPING SHOWN ABOVE THE CEILING UNLESS NOTED OTHERWISE.
- 2. INSTALL WASTE PIPING SHOWN BELOW THE FLOOR UNLESS NOTED OTHERWISE.
- 3. INSTALL ALL PIPING SHOWN IN EXTERIOR WALLS ON THE WARM SIDE OF THE BUILDING INSULATION.
- 4. INSTALL EXTERIOR DRAINAGE PIPING 48" DEEP
- MINIMUM. 5. DO NOT RUN PIPING ABOVE ELECTRICAL PANELS. PROVIDE 4'-0" DEEP X 6'-6" HIGH CLEAR
- ACCESS SPACE IN FRONT OF PANELS. DO NOT RUN PIPING IN ELECTRICAL ROOMS.
- 6. PROVIDE 2" MINIMUM WASTE PIPING BELOW GRADE. 7. FIELD DETERMINE EXACT SIZE, ELEVATION AND LOCATION OF EXISTING PIPING INSIDE THE BUILDING AT SPECIFIED CONNECTION POINTS PRIOR TO STARTING ANY WORK.
- 8. COORDINATE EXACT LOCATION OF FIXTURES AND DRAINS WITH ARCHITECTURAL DRAWINGS.
- 9. PROVIDE 3" MINIMUM VENT THRU ROOF. INCREASE VENT LINE 12" BELOW BUILDING INSULATION.
- 10. INSTALL PIPING WITH 1/32-INCH-PER-FOOT (0.25 PERCENT) SLOPE TOWARD WATER HEADER IN FREE STANDING RESTROOM BUILDING.





This document and the ideas Incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted

Professional Segi: OR OFESS No.8297 GORDON A. NIELSON

G: \LOCAL\Bear Lake Restrooms - 0635\MECH\M-001.dwg May 30 2006 9:19am By: SCO



120 North Twelfth Avenue Pocatello, Idaho 83201 PHONE (208) 232-2577

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used in whole or in part,for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC.

Copyright © 2006 by: NIELSON ENGINEERING, INC.

to the fullest exterit of the law.	0,000
Copyright © 2006 SKYLINE A/E/S, INC.	919 01 1/4
Project Title:	
BIG C	CREEK

Sheet Title: **RESTROOM** MECHANICAL PLAN

CAMPGROUND RESTROOMS

BEAR LAKE STATE PARK

Drawn By: Project Numbers: Drawing Type: DFCM: 06190510 NEI: 0635 Designed By: Sheet Number: MAY 2006

Unauthorized use will be prosecuted to the fullest extent of the Law. Reviewed By: Sheet Scale: 1/2" = 1'-0" HVAC GENERAL NOTES

ADHERED TO.

DESIGN/BUILD NOTES: A. THESE DRAWINGS AND SPECIFICATIONS ARE FOR THE DIVISION 15 CONTRACTOR TO BID AND INSTALL A HEATING, AIR CONDITIONING AND VENTILATION SYSTEM

PER THE DESIGN INTENT SHOWN. B. ALL EQUIPMENT, PIPING, DUCTWORK, COMPONENT AND ACCESSORY SIZES, CAPACÍTIES, AND TYPES SHOWN IN THESE DRAWINGS AND SPECIFICATIONS SHALL BE

C. THE CONTRACTOR SHALL INSTALL A COMPLETE AND FULLY OPERATIONAL SYSTEM.

). AS-BUILT DRAWINGS SHOWING ALL EQUIPMENT, COMPONENTS, PIPING, AND CONTROLS SHALL BE PREPARED TO THE SAME SCALE AS THESE DRAWINGS. AS-BUILT DRAWINGS SHALL BE ON MYLAR AND BE DRAWN IN A7/165/16CAD. DISK COPIES SHALL BE PROVIDED TO THE OWNER AND ARCHITECT/ENGINEER.

1. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT A COMPLETE, OPERATIONAL HVAC SYSTEM FOR THE ENTIRE PROJECT AS SHOWN ON THESE DRAWINGS, INCLUDING ALL NECESSARY FEES AND PERMITS.

2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE MOST RECENTLY ADOPTED REQUIREMENTS OF THE INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, INTERNATIONAL BUILDING CODE, AND ALL OTHER APPLICABLE CITY, COUNTY, AND STATE CODES AND REGULATIONS IN EFFECT AT THE DATE OF THE BID. CONFORM TO ANY CODES, RULES, REGULATIONS AND REQUIREMENTS THAT THE PROJECT OWNER HAS.

3. COORDINATE THE INSTALLATION OF ALL HVAC PIPING, DUCTWORK, AND EQUIPMENT WITH PLUMBING PIPING, PLUMBING EQUIPMENT, FIRE PROTECTION PIPING AND ALL OTHER TRADES INCLUDING BUT NOT LIMITED TO: THE MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR, FIRE PROTECTION CONTRACTOR, GENERAL CONTRACTOR, AND ANY CONTRACTOR HIRED DIRECTLY BY THE OWNER PRIOR TO FABRICATION AND INSTALLATION. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.

4. THE DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENTS AND THE EXTENT OF THE SYSTEM IT SHALL BE THE WORK OF THE CONTRACTOR TO MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES, OR MATERIAL REQUIRE PRIOR APPROVAL BY THE CONSULTING ENGINEER.

5. ALL HVAC INFORMATION IS NOT SHOWN ON THE HVAC DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL FIFCTRICAL AND REFRIGERATION DRAWINGS.

6. THE WORKING DRAWINGS ARE DIAGRAMMATIC. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR HVAC EQUIPMENT AND PIPING SHALL BE CHECKED AND COORDINATED WITH THE ARCHITECTURAL, MECHANICAL, STRUCTURAL AND ELECTRICAL DRAWINGS.

7. SPACE ABOVE ALL CEILINGS IS EXTREMELY LIMITED. CAREFUL COORDINATION IS REQUIRED WITH ALL TRADES BEFORE ANY PIPE, DUCT, OR EQUIPMENT IS ORDERED AND/OR INSTALLED. 1/8" SCALE SHOP DRAWINGS (SUBMITTED TO SPECTRUM ENGINEERS FOR APPROVAL) ARE REQUIRED FOR ALL DIVISION 15 WORK. ANY CONFLICTS AND/OR CHANGES FOUND DURING INSTALLATION THAT RESULT FROM LACK OF COORDINATION BY THE CONTRACTORS DURING THE SHOP DRAWING PROCESS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

8 THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.

9. DETAILS: THE CONTRACTOR IS RESPONSIBLE TO REVIEW AND USE WHERE APPROPRIATE ALL OF THE MECHANICAL DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE MECHANICAL SYSTEM WITHOUT USING THE INCLUDED DETAILS IS THE RESPONSIBILITY OF THE CONTRACTOR.

10. PIPING SCHEMATICS: THE CONTRACTOR IS RESPONSIBLE TO REVIEW THE PIPING SCHEMATICS INCLUDED WITH THE DRAWINGS FOR PIPING CONNECTIONS TO ALL MECHANICAL EQUIPMENT THE PIPING SCHEMATICS SHOW DETAILED CONNECTIONS INCLUDING NECESSARY VALVES, FITTINGS, PRESSURE AND TEMPERATURE GAUGES, ETC., THAT ARE NOT SHOWN ON THE PIPING PLANS. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE MECHANICAL SYSTEM WITHOUT USING THE INCLUDED PIPING SCHEMATICS IS THE RESPONSIBILITY OF THE CONTRACTOR.

11. PREPARE 6 COPIES OF SUBMITTALS IN AN INDEXED, LABELED FOLDER CONTAINING FULL PERFORMANCE, MATERIAL AND INSTALLATION INFORMATION ABOUT ALL EQUIPMENT, PIPING, COMPONENTS AND ACCESSORIES TO BE USED. SPECTRUM ENGINEERS WILL CHECK SUBMITTALS AT MOST TWICE. TIME SPENT ON SUBSEQUENT SUBMITTALS WILL BE BILLED TO THE CONTRACTOR BY THE ENGINEER AT ITS CURRENT HOURLY RATES.

12. THE STRUCTURE SHOWN ON ALL DETAILS MAY OR MAY NOT PERTAIN TO A PORTION OR ANY PORTION OF THE BUILDING. COORDINATE MOUNTING REQUIREMENTS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

13. ANY PART OF THIS INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE

14. ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE SITE ALTITUDE.

15. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, VALVES, DAMPERS, AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.

6. THE DIVISION 15 CONTRACTOR SHALL FURNISH ALL REQUIRED MOTORS. ALL MOTOR STARTING EQUIPMENT, WHEN NOT A PART OF THE EQUIPMENT, WILL BE FURNISHED BY THE ELECTRICAL CONTRACTOR.

17. THE CONTRACTOR IS RESPONSIBLE FOR HVAC EQUIPMENT CHECK-IN, SAFEKEEPING, AND DAMAGE. 18. PROPERLY LUBRICATE ALL PIECES OF EQUIPMENT

BEFORE TURNING THE SYSTEM OVER TO THE OWNER. 19. TWO OPERATING AND MAINTENANCE MANUALS SHALL BE PROVIDED IN HARD BACK LOOSE LEAF BINDERS. MANUALS SHALL CONTAIN PRODUCT CUT

SHEETS AND OPERATING AND MAINTENANCE

INSTRUCTIONS ON ALL EQUIPMENT, ACCESSORIES FIXTURES, VALVES, ETC., PROVIDED FOR THE PROJECT. 20. UPON COMPLETION OF THE WORK, REMOVE ALL SURPLUS MATERIALS AND RUBBISH. MAKE ALL REQUIRED PATCHING AND REPAIRS OF OTHER TRADES' WORK DAMAGED BY THIS CONTRACTOR, AND LEAVE

21. THE CONTRACTOR SHALL OPERATE THE SYS AND DEMONSTRATE ALL ASPECTS TO THE ENGINEER AND/OR OWNER, TO PROVE ITS OPERATION. ALL FILTERS USED DURING CONSTRUCTION SHALL BE REPLACED PRIOR TO THE TEST RUN PERIOD.

THE PREMISES IN A CLEAN, ORDERLY CONDITION.

22. THE CONTRACTOR SHALL GUARANTEE THE HVAC SYSTEM FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.

23. THE CONTRACTOR SHALL, DURING CONSTRUCTION, MAINTAIN A SET OF AS-BUILT REDLINED RECORD DRAWINGS AT THE PROJECT SITE. ALL CHANGES IN LAYOUT, ROUTING, EQUIPMENT, COMPONENTS, AND ACCESSORIES SHALL BE RECORDED. THESE REDLINES SHALL BE GIVEN TO THE ARCHITECT/ENGINEER AFTER THE FINAL INSPECTION.

15010 - BASIC MECHANICAL REQUIREMENTS COORDINATE THE LOCATION OF ALL NEW ROOF OPENINGS AND THE LOCATION OF ALL NEW ROOF MOUNTED EQUIPMENT WITH THE STRUCTURE AND ARCHITECTURAL PLANS PRIOR TO ANY INSTALLATION.

V-BELT DRIVES SHALL BE OF FABRIC AND RUBBER CONSTRUCTION. BELT GUARDS SHALL BE PROVIDED FOR ALL EXPOSED BELTS AND DRIVES.

PROPERLY LUBRICATE ALL PIECES OF EQUIPMENT BEFORE TURNING THE SYSTEM OVER TO THE OWNER.

INSTALL DUCT MOUNTED RETURN AIR SMOKE DETECTORS IN ALL ROOFTOP, FAN-COIL, AIR-HANDLING, AND OTHER SUPPLY AIR SYSTEMS, WITH A CAPACITY GREATER THAN 2000 CFM. SMOKE DETECTORS ARE FURNISHED AND WIRED BY THE ELECTRICAL CONTRACTOR.

15055- BASIC PIPING MATERIALS AND METHODS ALL PIPE PENETRATIONS OF EXISTING WALLS MASONRY OR CONCRETE AND FLOORS SHALL BE CORE CUT. PENETRATIONS THROUGH NEW WALLS AND FLOORS SHALL BE SLEEVED. SEAL ALL PENETRATIONS WATERTIGHT WITH SILICONE SEALANT, USE FIRE RATED SEALANT FOR 1 HR OR 2 HR PENETRATIONS.

15100 - VALVES PROVIDE VALVES OF THE TYPE AND QUANTITY SHOWN ON THE DRAWINGS. VALVES OF THE SAME TYPE TO BE BY ONE MANUFACTURER.

15190 - MECHANICAL IDENTIFICATION: PIPING:

PLASTIC TAPE: MANUFACTURER'S STANDARD COLOR-CODED PRESSURE-SENSITIVE (SELF ADHESIVE) VINYL TAPE, NOT LESS THAN 3 MILS THICK. 1-1/2" WIDE TAPE MARKERS ON PIPES WITH OUTSIDE DIAMETERS (INCLUDING INSULATION, IF ANY) OR LESS THAN 6", 2-1/2" WIDE TAPE FOR LARGER PIPES.

DUCT MARKERS: MANUFACTURER'S STANDARD LAMINATED PLASTIC; COLOR CODED DUCT MARKERS.

COLOR: COMPLY WITH ANSI A13.1

LETTERING: MANUFACTURER'S STANDARD PRE-PRINTED NOMENCLATURE WHICH BEST DESCRIBES PIPING OR DUCT SYSTEM IN EACH INSTANCE OR AS SELECTED BY ARCHITECT OR ENGINEER IN CASES OF VARIANCE WITH NAMES AS SHOWN.

ARROWS: PRINT EACH MARKER WITH ARROWS INDICATING DIRECTION OF FLOW.

PLASTIC LAMINATE VALVE TAGS: MANUFACTURER'S STANDARD 3/32" THICK ENGRAVED TAGS WITH PIPING SYSTEM ABBREVIATION IN 1/4" HIGH LETTERS AND SEQUENCED VALVE NUMBERS 1/2" HIGH, WITH 5/32" HOLE FOR FASTENER. PROVIDE 1-1/2" SQUARE BLACK TAGS WITH WHITE LETTERING.

VALVE TAG FASTENERS: PROVIDE MANUFACTURER'S STANDARD SOLID BRASS CHAIN (WIRE LINK OR BEADED TYPE), OR SOLID BRASS S-HOOKS OF THE SIZED REQUIRED FOR PROPER ATTACHMENT OF TAGS TO VALVES, AND MANUFACTURED SPECIFICALLY FOR THAT PURPOSE.

15242 - VIBRATION ISOLATION AND SEISMIC ALL PLUMBING EQUIPMENT, MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING MUST BE VIBRATION ISOLATED AND SEISMIC ALLY BRACED FOR THE SITE SPECIFIC SEISMIC DESIGN CATEGORY AND SEISMIC USE GROUP, IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE IBC, UBC, ASHRAE, AND SMACNA. PROVIDE SEISMIC PRODUCTS BY AMBER-BOOTH OR MASON INDUSTRIES.

IN GENERAL, PROVIDE SPRING MOUNTS TO ATTENUATE LOW FREQUENCY SOUND AND VIBRATION AND NEOPRENE PADS TO ATTENUATE HIGH FREQUENCY SOUND AND VIBRATION, SEISMIC BRACING/MOUNTING CAN BE COMBINED WITH VIBRATION ISOLATION AS APPLICABLE.

CONTRACTOR MANUFACTURED SEISMIC BRACING/RESTRAINT METHODS ARE NOT ACCEPTABLE. PROVIDE A SIGNED AND STAMPED LETTER FROM A PROFESSIONAL ENGINEER CERTIFYING THAT THE SUPPLIED PRODUCTS ARE CORRECT FOR THE APPLICATION AND THAT THE INSTALLATION IS IN COMPLIANCE WITH ALL APPLICABLE CODES.

15250 - MECHANICAL INSULATION PIPE INSULATION TO BE SNAP-ON GLASS FIBER TYPE WITH VAPOR JACKET. SEAL ALL ENDS AND JOINTS TO PROVIDE A COMPLETELY SEALED SYSTEM. ALTERNATIVELY, USE FLEXIBLE UNICELLULAR ASTM 534 TYPE 1 INSULATION. USE 1" THICKNESS FOR PIPE UP TO 2"ø, AND 1 1/2" FOR PIPE OVER 2"ø

ALL SUPPLY AND RETURN DUCTWORK SHALL BE WRAPPED WITH 1-1/2" THICK FOIL FACED FIBERGLASS INSULATION. INSULATION SHALL BE WRAPPED TIGHTLY ON THE DUCT WITH ALL CIRCUMFERENTRIAL JOINTS BUTTED AND LONGITUDINAL JOINTS OVERLAPPED A MIN. OF 2". ALL JOINTS SHALL BE COVERED WITH FOIL-REINFORCED 'KRAFT' TAPE, 3" WIDE.

OUTDOOR DUCTWORK EXPOSED TO THE WEATHER SHALL BE FITTED WITH 0.016 EMBOSSED ALUMINUM JACKET POP-RIVITED FOR A TIGHT WEATHERPROOF FIT.

PROVIDE ADA COMPLIANT FIXTURES WITH SNAP ON ADA ARTICLE 4.19 22FF COMPLIANT WHITE INSULATION. TRUEBRO LAV GUARD, BASIN GUARD OR LAV SHIELD.

15411 - WATER DISTRIBUTION PIPING

NO TYPE "M" OR DWV COPPER IS TO BE USED IN THIS PROJECT.

ALL ABOVE GROUND HOT AND COLD WATER PIPING SHALL BE ASTM B 88 TYPE "L" COPPER, WITH WROUGHT COPPER FITTINGS AND SOLDERED WITH 95-5 TIN-ANTIMONY SOLDER.

INSTALL PIPE HANGERS WITH THE FOLLOWING MINIMUM ROD SIZES AND MAXIMUM SPACING, UPON COMPLETION OF HANGER INSTALLATION, ALL ADJUSTMENTS HAVING THE POSSIBILITY OF TURNING SHALL BE LOCKED SECURELY IN PLACE BY DOUBLE NUTTING AT THE HANGER ROD ATTACHMENT TO THE STRUCTURE, AND AT THE PIPE

NOM. PIPE SIZE	MAX. SPAN-FT.	MIN. ROD SIZE-INCHES
1	7	3/8
1-1/2	9	3/8
2	10	3/8
3	12	1/2
4	14	5/8
6	17	3/4

ALL PIPE HANGERS AND EQUIPMENT SUPPORTS SHALL BE LOCATED A MINIMUM DISTANCE OF 2" FROM ANY REFRIGERANT PIPE.

ALL PLUMBING FIXTURES CONNECTED TO A POTABLE WATER SYSTEM WITH HOSE CONNECTIONS ON THE OUTLET SIDE AND OWNER FURNISHED EQUIPMENT WITH DIRECT CONNECTIONS, SHALL BE PROVIDED WITH BACKFLOW PREVENTION.

CLEAN AND DISINFECT WATER PIPING PER AWWA C651 OR C652 PROCEDURES.

15420 - DRAINAGE AND VENT SYSTEMS UNDERGROUND BUILDING DRAIN PIPE AND FITTINGS SHALL BE HUB AND SPIGOT CAST IRON SOIL PIPE, OR ASTM A888 (OR CISPI 301) HUBLESS CAST IRON SOIL PIPE WITH ASTM C564 HEAVY DUTY SHIELDED STAINLESS STEEL COUPLINGS.

ABOVE GROUND SANITARY DRAINAGE AND VENT PIPING, IN ALL AREAS EXCEPT AIR PLENUMS AND ANYWHERE IN A FIRED RATED BUILDING, SHALL BE SERVICE WEIGHT, NO HUB CAST IRON COUPLED PIPE AND FITTINGS WITH COMPRESSION TYPE NEOPRENE GASKETS AND STAINLESS STEEL BANDS.

ALL SANITARY DRAINAGE AND VENT PIPING INSIDE AIR PLENUMS AND ANYWHERE IN A FIRE RATED BUILDING SHALL BE NO HUB SERVICE WEIGHT CAST IRON COUPLED PIPE AND FITTINGS WITH COMPRESSION TYPE NEOPRENE GASKETS AND STAINLESS STEEL BANDS. ASTM B306 COPPER PIPE MAY BE USED WITH SOLDERED JOINTS FOR PIPE 3" AND SMALLER.

INSTALL SANITARY DRAIN LINES 2-1/2" AND LESS WITH A SLOPE OF 2%. INSTALL SANITARY DRAIN LINES 3"-6" WITH A SLOPE OF NOT LESS THAN 1%.

SLOPE ROOF DRAIN LINES DOWN IN DIRECTION OF FLOW, 1/8" PER FOOT.

15488 — NATURAL GAS SYSTEMS NATURAL GAS PIPING ABOVE GROUND OR INSIDE BUILDINGS SHALL BE SCHEDULE 40 BLACK STEEL WITH WELDED OR MALLEABLE IRON FITTINGS.

PROVIDE GAS SHUT OFF VALVE AT EACH PIECE OF GAS UTILIZING EQUIPMENT.

15530 - REFRIGERANT PIPING

INSTALL MANUFACTURER'S PRE-CHARGED REFRIGERANT LINE-SETS FROM THE CONDENSING UNIT TO THE DX-COIL AND CONNECT AS REQUIRED. ALL PIPING PENETRATIONS SHALL BE SEALED WATERTIGHT WITH SILICONE SEALANT AND PROVIDED WITH ESCUTCHEON PLATES WHERE VISIBLE. SUPPORT REFRIGERANT LINES AT 5 FT ON CENTER. SUPPORT EXTERIOR PIPING ON UNISTRUT. NEST GROUPS OF PIPE TOGETHER WHENEVER POSSIBLE, SIZE OF LINES TO BE AS RECOMMENDED BY THE MANUFACTURER OF THE EQUIPMENT, FOR THE REFRIGERATION CAPACITY, DISTANCE AND VERTICAL RISES INVOLVED. PROVIDE DOUBLE SUCTION RISERS WHEN CONDENSING UNIT IS MORE THAN MANUFACTURERS RECOMMENDED HEIGHT ABOVE THE EVAPORATOR COIL

PROVIDE COPPER REFRIGERANT PIPING SIZED AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER. BRAISE ALL JOINTS AND FITTINGS. PROVIDE 1/2" THICK INSULATION ON ENTIRE LENGTH OF REFRIGERANT SUCTION PIPING EQUAL TO 'ARMSTRONG ARMAFLEX'. ALL JOINTS OF INSULATION SHALL BE COATED WITH TWO (2) COATS OF GRAY 'ARMAFLEX NO.22' FINISH OR EQUAL. PROVIDE EXTERIOR INSULATION WITH A UV PROTECTION SLEEVE.

15575 - BREECHING, CHIMNEYS, AND STACKS FLUES SHALL BE CLASS "B" METALBESTOS ALUMINUM CONSTRUCTION WITH CLEANOUT PLUG. A WIND PROOF RAIN CAP SHALL BE PROVIDED AND INSTALLED. LOCATE ALL VENTS AND FLUES AT LEAST 3 FT ABOVE OR 10 FT AWAY FROM ALL OUTSIDE AIR INTAKES INTO THE BUILDING.

15610 - FORCED AIR FURNACES FACTORY ASSEMBLED CONDENSING GAS FURNACE WITH 100% OUTDOOR COMBUSTION AIR, SEALED COMBUSTION MINIMUM 90% AFUE. FURNACE CONSISTS OF CASING, HEAT EXCHANGERS, BLOWER, AIR FILTER, REDUNDANT GAS VALVE, HOT SURFACE IGNITOR, AND CONTROLS. UNITS TO HAVE 20 YEAR HEAT EXCHANGER WARRANTY. UNITS TO BE CARRIER, LENNOX, TRANE, OR YORK.

PIPING FOR FURNACE VENT/INTAKE AIR AND FOR CONDENSATE DRAINS, SHALL BE PVC SCHEDULE 40, SECURELY SUPPORTED AT NO MORE THAN 5 FT CENTERS. INSULATE ALL VENTS AND AIR INTAKES LOCATED IN TRUSS SPACES AND IN ATTICS.

FACTORY ASSEMBLED GAS FURNACE MINIMUM 80% AFUE. FURNACE CONSISTS OF CASING, HEAT EXCHANGER, BLOWER, REDUNDANT GAS VALVE, HOT SURFACE IGNITOR, AND CONTROLS. UNITS TO HAVE 20 YEAR HEAT EXCHANGER WARRANTY. UNITS TO BE CARRIER, LENNOX, TRANE, OR YORK.

PROVIDE EACH FURNACE WITH TYPE B GALVANIZED STEEL VENT HAVING AIR TIGHT JOINTS.

PROVIDE FURNACE MANUFACTURER'S STANDARD A-FRAME OR N-FRAME DX COOLING COIL. COIL TO BE COMPLETE WITH GALVANIZED DRAIN PAN WITH DRAIN CONNECTION, DX EXPANSION VALVE, LIQUID SOLENOID VALVE, AND LIQUID LINE SIGHT GLASS/MOISTURE INDICATOR, MOUNT COOLING COIL IN FURNACE SUPPLY PLENUM IN LOCATION SHOWN ON DRAWINGS.

INSTALL 3/4" COPPER DRAIN LINES FROM COIL DRAIN PANS AND EXTEND TO FLOOR DRAIN.

INSTALL 3/4" COPPER CONDENSATE DRAIN LINE FROM COOLING COIL DRAIN PAN AT INDOOR UNIT OF SPLIT SYSTEMS AND EITHER EXTEND TO OUTSIDE, OR TIE TO TAILPIECE OF NEAREST SINK, OR RUN TO NEAREST FAN ROOM FLOOR DRAIN OR SERVICE SINK.

15620 - FUL-FIRED DUCT FURNACE FACTORY ASSEMBLED AND TESTED GAS-FIRED HEATER. HEATER TO BE COMPLETE WITH WELDED ALUMINIZED BURNER AND HEAT EXCHANGER, GALVANIZED STEEL CASING WITH BAKED ENAMEL FINISH, GAS VALVE, SPARK IGNITION AND ALL CONTROLS NECESSARY TO BE A COMPLETE AND OPERABLE SYSTEM. UNITS TO BE MODINE, REZNOR, STERLING, TRANE OR HASTINGS.

15670 — CONDENSING UNITS FACTORY ASSEMBLED AND TESTED AIR COOLED CONDENSING UNITS. CONSISTING OF CASING, COMPRESSOR, CONDENSER COIL, CONDENSER FAN AND MOTOR. REFRIGERANT RESERVOIR, AND OPERATING CONTROLS. UNITS TO BE COMPLETE WITH HIGH AND LOW PRESSURE CUTOUTS, SERVICE SHUTOFF VALVES, AND HAVE 5 YEAR COMPRESSOR WARRANTY. UNITS TO BE CARRIER, LENNOX, TRANE, OR YORK.

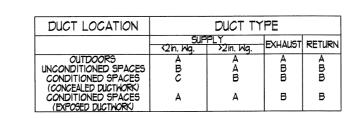
15850 - FANS AND ROOF HOODS FANS AND ROOF HOODS SHALL BE COOK, ILG, PENN OR APPROVED EQUAL.

15891- METAL DUCTWORK

ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED, AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS AND PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION, (SMACNA).

DUCTWORK SHALL BE GALVANIZED STEEL THROUGHOUT, FABRICATED AND INSTALLED SO THAT NO VIBRATION OR NOISE RESULTS. IT SHALL BE MADE FROM THE BEST GRADE OF GALVANIZED MILLED STEEL SHEETS OF U.S. STANDARD GAUGE AND BE FREE FROM BLISTERS, SLIVERS, AND PITS. ALL SEAMS SHALL BE AIRTIGHT, THE CONSTRUCTION OF ALL DUCTWORK, INCLUDING GAUGES OF METAL, BRACING LAYOUT, ETC., SHALL BE IN ACCORDANCE WITH SMACNA. SLEEVES FOR FIRE DAMPERS AND DUCT SECTIONS FORMING AN EXTENSION OF THE FIRE WALL SHALL BE 10 GAUGE STEEL.

SEAL DUCTWORK ACCORDING TO THE FOLLOWING SMACNA DUCT SEALING CLASS:



HANGERS FOR DUCTS UP TO 18" IN WIDTH OR DIAMETER SHALL BE PLACED ON NOT MORE THAN 8 FOOT CENTERS. DUCTS 19" AND OVER IN WIDTH OR DIAMETER SHALL BE SUPPORTED ON NOT MORE THAN 4 FOOT CENTERS. DUCT HANGERS SHALL BE CONSTRUCTED OF GALVANIZED BAND IRON 1-1/8" FOR DUCTS UP TO 36" IN WIDTH OR DIAMETER. HANGERS SHALL EXTEND DOWN SIDES AND A MINIMUM OF 1" UNDER RECTANGULAR DUCTS, AND WRAP COMPLETELY AROUND ROUND DUCTS. ALL DUCTS SHALL BE RIGIDLY SUPPORTED.

ALL DUCTWORK SHALL BE CLEANED PRIOR TO THE INSTALLATION OF CEILING AND DIFFUSERS. OPERATE FANS TO BLOW OUT DUCTWORK.

RECTANGULAR LOW-PRESSURE SUPPLY AND RETURN AIR DUCTWORK SHALL BE LINED WITH 1" FACED FIBERGLASS INSULATION SECURELY BUTTONED OR LAPPED AND SEALED. INSULATION SHALL BE 1-1/2 POUND DENSITY.

DUCT LINER TO BE BY KNAUF GmbH, JOHN-MANSVILLE OR SCHULLER INTERNATIONAL.

15910 - DUCTWORK ACCESSORIES MAX. FLEXIBLE DUCT LENGTH SHALL BE FIVE (5) FEET. FLEXIBLE DUCT SHALL BE FLEXMASTER TYPE 5M.

SQUARE ELBOWS SHALL BE PROVIDED WITH TURNING VANES.

PROVIDE FLEXIBLE CONNECTIONS NOT LESS THAN 4" WIDE CONSTRUCTED OF HEAVY, WATERPROOF, WOVEN PLASTIC COATED GLASS FABRIC AT SUPPLY AND RETURN CONNECTIONS TO FURNACES. CORNERS SHALL BE SEWN TIGHT. CONNECTIONS SHALL BE 20 OUNCE VENT FABRICS OR EQUAL.

DUCT MOUNTED BALANCING DAMPERS SHALL BE USED TO CONTROL SUPPLY AIR TO EACH DIFFUSER AND GRILLE. AN OPERATING HEAD SHALL BE PLACED ON THE SIDE OF THE DUCT WITH A POSITIVE LOCKING QUADRANT. DAMPERS SHALL BE PROVIDED IN RETURN AND EXHAUST AIR DUCTS WHERE SHOWN ON DRAWINGS. COORDINATE THE LOCATION OF CEILING ACCESS PANELS.

PROVIDE ACCESS DOORS AT ALL LOCATIONS OF BALANCING DAMPERS AND VALVES, ETC., WHERE THERE IS NOT A LIFT-OUT TYPE CEILING. ACCESS DOORS SHALL BE HINGED OF METAL CONSTRUCTION WITH SCREWDRIVER LATCHES. WHERE DUCTS ARE INSULATED, COVERS SHALL BE INSULATED.

GRAVITY OR BACKDRAFT DAMPERS SHALL BE ALL ALUMINUM CONSTRUCTION, INTERCONNECTED AND BLADED. PRESSURE DROP THROUGH DAMPERS SHALL NOT EXCEED 0.04 INCH W.G.

15932 - GRILLES, DIFFUSERS & LOUVERS ALL GRILLES, DIFFUSERS, AND REGISTERS SHALL BE COMPLETE WITH FRAMES AND RUBBER GASKETS. FINISH FOR ALL REGISTERS, DIFFUSERS, AND GRILLES SHALL BE WHITE.

THE FOLLOWING KRUEGER (OR EQUAL) PRODUCTS SHALL BE USED: SH OR 1400 SIDEWALL GRILLE: 800 (SUPPLY) LOUVER FACE: SLOT DIFFUSERS: 1910 S80 (RETURN) PERFORATED DIFFUSERS: 6504 (SUPPLY) 480H (HEAVY DUTY SUPPLY & RETURN) 6290 (RETURN) DOOR GRILLE: ARCHITECTURAL: PLQEGG CRATE: EGC-5 DRUM LOUVERS: DPL LINEAR GRILLE: 1600 ROUND: FLOOR GRILLE: 1800

COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL LIGHTING LAYOUT, AND ARCHITECTURAL ELEVATIONS.

LOUVERS SHALL HAVE MINIMUM FREE AREA AND MAXIMUM PRESSURE DROP AS LISTED IN SCHEDULE. LOUVER SHALL HAVE FRAME AND SILLS COMPATIBLE WITH ADJACENT SUBSTRATE AND FIT ACCURATELY FOR WEATHERPROOF INSTALLATION. LOUVERS SHALL BE COMPLETE WITH 1/2" MESH ANODIZED ALUMINUM BIRD SCREEN.

15970 - AUTOMATIC TEMPERATURE CONTROL SYSTEM

FURNISH AND INSTALL A COMPLETE ELECTRONIC AUTOMATIC TEMPERATURE CONTROL SYSTEM TO PROVIDE THE FOLLOWING FUNCTIONS:

VISITOR'S CENTER CONTROL SYSTEM:

A. FURNACE/CONDENSING UNIT SYSTEM: PROVIDE WALL MOUNTED THERMOSTAT WITH 2-STAGE HEATING, 1-STAGE COOLING AND NIGHT SETBACK. PROVIDE DUCT SMOKE DETECTION SYSTEM SUCH THAT WHEN SMOKE IS DETECTED, SUPPLY FANS SHUT DOWN.

B. TOILET EXHAUST FAN: EXHAUST FAN SHALL OPERATE DURING OCCUPIED HOURS. PROVIDE INTERLOCKING BETWEEN OUTSIDE AIR MOTORIZED DAMPER AND EXHAUST FAN SUCH THAT MOTORIZED DAMPER IS OPEN WHEN EXHAUST FAN IS OPERATING.

2. FREE STANDING RESTROOM BUILDING CONTROL SYSTEM:

A. SUPPLY FAN/DUCT FURNACE SYSTEM: PROVIDE WALL MOUNTED THERMOSTAT INTERLOCKED WITH DUCT FURNACE FOR HEATING BASED ON SET POINT. PROVIDE AMBIENT AIR TEMPERATURE SENSOR INTERLOCKED WITH DUCT FURNACE FOR HEATING UPON SENSING TEMPERATURE BELOW SET POINT.

B. TOILET EXHAUST FAN:

SUMMER MODE: EXHAUST FAN SHALL OPERATE WHEN SUPPLY FAN IS OPERATING. PROVIDE INTERLOCKING BETWEEN EXHAUST FAN AND OUTSIDE AIR DAMPER SUCH THAT OUTSIDE AIR DAMPER OPENS WHEN EXHAUST FAN IS OPERATING.

WINTER MODE: EXHAUST FAN SHALL NOT OPERATE DURING WINTER MONTHS. EXHAUST DUCTWORK SHALL OPERATE AS RETURN DUCTWORK BY CLOSING DAMPER TO MAIN EXHAUST DUCT AND OUTSIDE AIR VENT THEN OPENING DAMPER TO RETURN DUCT MAIN. 15990 - TESTING, ADJUSTING AND BALANCING OBTAIN THE SERVICES OF AN INDEPENDENT TESTING AND BALANCING AGENCY TO BALANCE AND ADJUST THE SYSTEM. THIS SHALL BE DONE BY PERSONS FULLY FAMILIAR WITH SYSTEMS OF THIS TYPE. BALANCING SHALL BE DONE IN ACCORDANCE TO AABC OR NEBB STANDARDS. ALL DATA SHALL BE RECORDED AND A REPORT SUBMITTED TO THE ENGINEER PRIOR TO JOB CLOSE OUT.

REVISION DESCRIPTION:

Architecture / Engineering / Surveying 95 W. Golf Course Rd. #101, Logan, Ut 84321 (435) 752-8501 / Fax (435) 752-8597 This document and the ideas Incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized

representative of SKYLINE A/E/S, INC.

Unauthorized use will be prosecuted

to the fullest extent of the law.

Professional Segi: ROFESSIO No.8297 GORDON A. NIELSON Copyright © 2006 SKYLINE A/E/S, INC.

DATE:

Project Title:

BIG CREEK CAMPGROUND RESTROOMS **BEAR LAKE STATE PARK** 

Sheet Title: **RESTROOM** MECHANICAL PLAN

120 North Twelfth Avenue

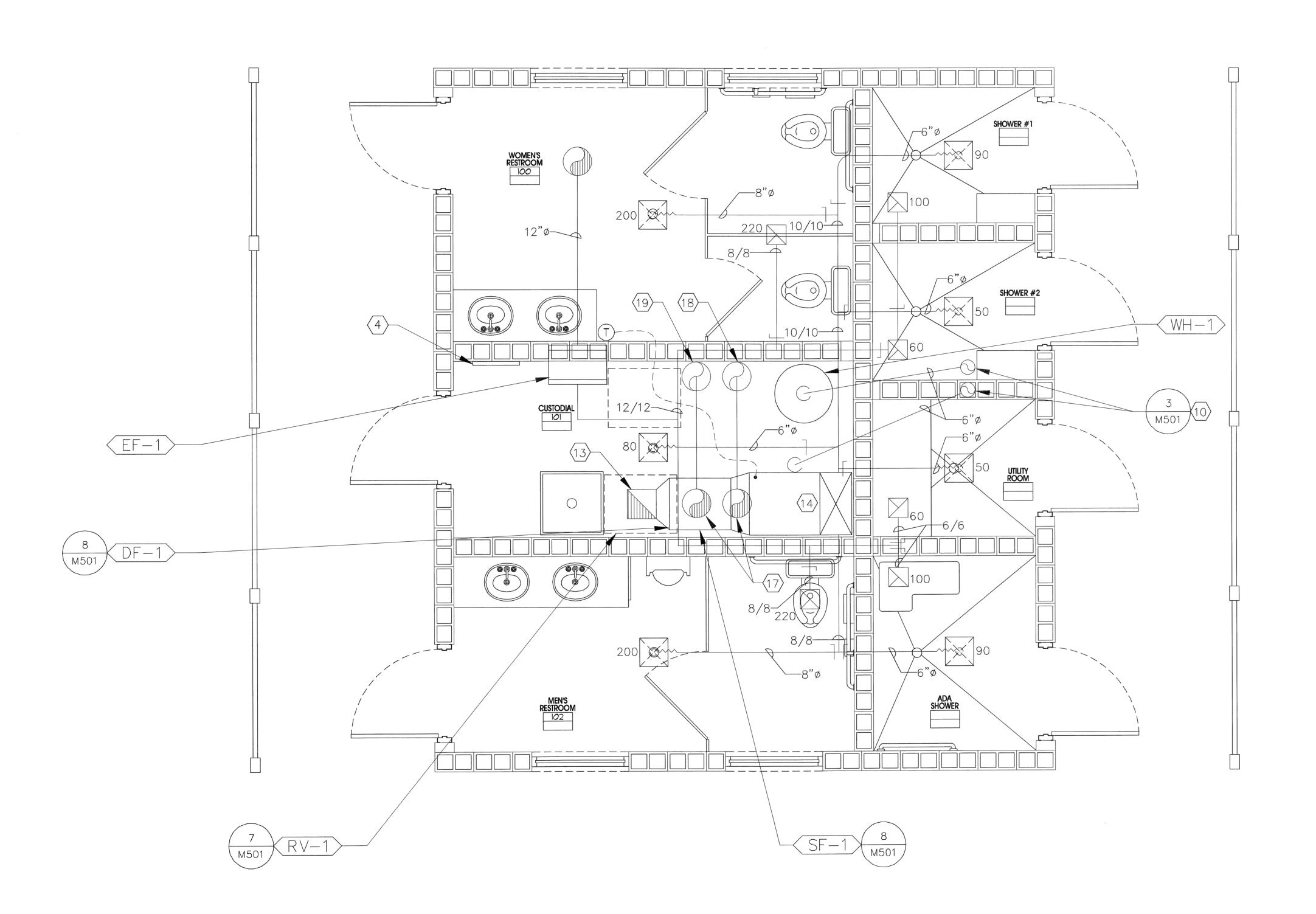
Pocatello, Idaho 83201

Drawn By: Project Numbers: Drawing Type: DFCM: 06190510 Sheet Number: Designed By: MAY 2006 Reviewed By: Sheet Scale: 1/2" = 1'-0"

Nielson Engineering, Inc. FAX (208) 234-0918 PHONE (208) 232-2577 Consulting Engineers

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC. Unauthorized use will be prosecuted to the fullest extent of the Law.

OWNERSHIP OF DOCUMENTS



### O SHEET KEYNOTES

- NOTE NOT USED
- NOTE NOT USED
- . NOTE NOT USED
- 4. DO NOT ROUTE DUCTWORK OR PIPING ABOVE ELECTRICAL PANEL.
- NOTE NOT USED
- NOTE NOT USED
- . NOTE NOT USED
- B. NOTE NOT USED

. NOTE NOT USED

- 10. TYPE-B VENT. SIZE PER WATER HEATER & DUCT FURNACE. MANUFACTURER'S RECOMMENDATION.
- 1. NOTE NOT USED
- 12. NOTE NOT USED
- 13. 12/12 OUTSIDE AIR DUCT DOWN TO FILTER BOX. TRANSITION AS REQUIRED TO FIT OPENING.
- 14. 24/12 SUPPLY DUCT UP IN ATTIC SPACE.
- 15. NOTE NOT USED
- 16. NOTE NOT USED
- 7. EXTEND 12" Ø COMBUSTION AIR DUCT THRU ROOF. RISE ABOVE POTENTIAL SNOW LEVEL AND PROVIDE RAIN CAP.
- 18. DROP COMBUSTION AIR DUCT DOWN. EXTEND DUCT 1'-0" BELOW CEILING LEVEL.
- 19. DROP COMBUSTION AIR DUCT DOWN. EXTEND THE 1'-O" ABOVE FINISHED FLOOR LEVEL.

### GENERAL NOTES

- ALL DUCTWORK IN FREE STANDING RESTROOM BUILDING SHALL BE
- ALL DIFFUSERS AND GRILLES IN FREE STANDING RESTROOM BUILDING SHALL BE BALANCED BY OPPOSED BLAD DAMPERS ON
- ALL FLUES AND VENTS SHALL BE LOCATED 10 FEET FROM ANY INTAKES.
- EXTEND DUCT THRU JOIST WEBBING AS NECESSARY. DUCT SIZES SHOWN WERE SIZED TO FIT THRU PREDICTED STRUCTURAL WEBBING SIZES. ACTUAL STRUTURAL WEBBING MAY DIFFER. RE-SIZE & RELOCATE DUCT AS NECESSARY TO FIT THRU ACTUAL STURCTURAL WEBBING. COORDINATE DIMENSIONS WITH ASSOCIATED TRADES PRIOR TO SUBMITTING AND/OR PURCHASING DUCTWORK. ALL COORDINATION & CHANGES SHALL BE REFLECTED IN SHEET METAL & PLUMBING SHOP DRAWINGS. SUPPLY DUCT SHALL BE SIZED FOR 0.1" W.G./100FT. RETURN 0.08"W.G./100FT.
- ALL EQUIPMENT HAS BEEN SHOWN TO COORDINATE WITH PREDICTED STRUCTURE. RELOCATE AS REQUIRED TO FIT IN ACTUAL TRUSS

REVISION DESCRIPTION:



This document and the ideas Incorporated herein, as an Instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.



Copyright © 2006 SKYLINE A/E/S, INC.

BIG CREEK CAMPGROUND RESTROOMS BEAR LAKE STATE PARK

Sheet Title:

120 North Twelfth Avenue Pocatello, Idaho 83201

Consulting Engineers

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used

in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC.

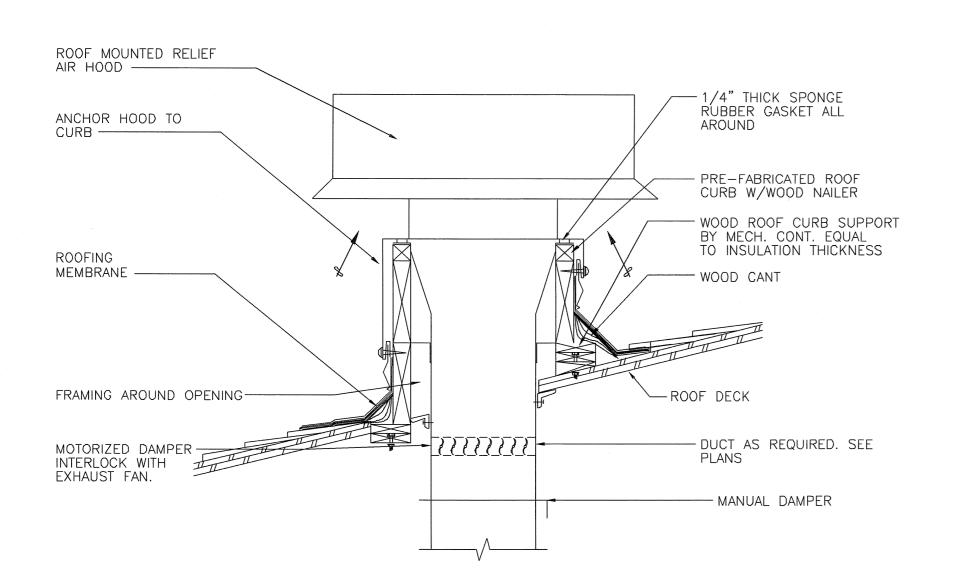
Unauthorized use will be prosecuted to the fullest extent of the Law.

Copyright © 2006 by: NIELSON ENGINEERING, INC.

**RESTROOM** MECHANICAL PLAN

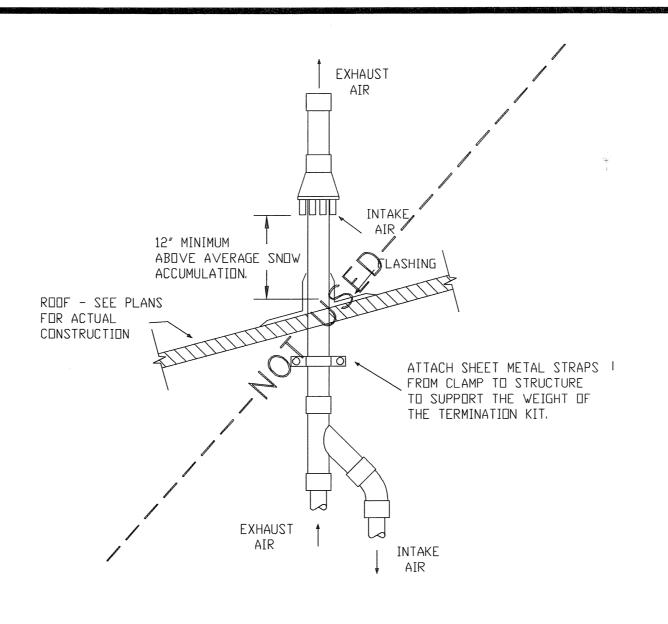
Project Numbers: DFCM: 06190510 NEI: 0635 Drawn By: Drawing Type: Designed By: Sheet Number: MAY 2006 Reviewed By: Sheet Scale: 1/2" = 1'-0"

B RESTROOM MECHANICAL PLAN
SCALE: 1/2"=1'-0" Nielson Engineering, Inc. PHONE (208) 232-2577 FAX (208) 234-0918



NOTE: MECHANICAL EQUIPMENT TO SET LEVEL. ORDER CURB TO COMPENSATE FOR ROOF SLOPE.

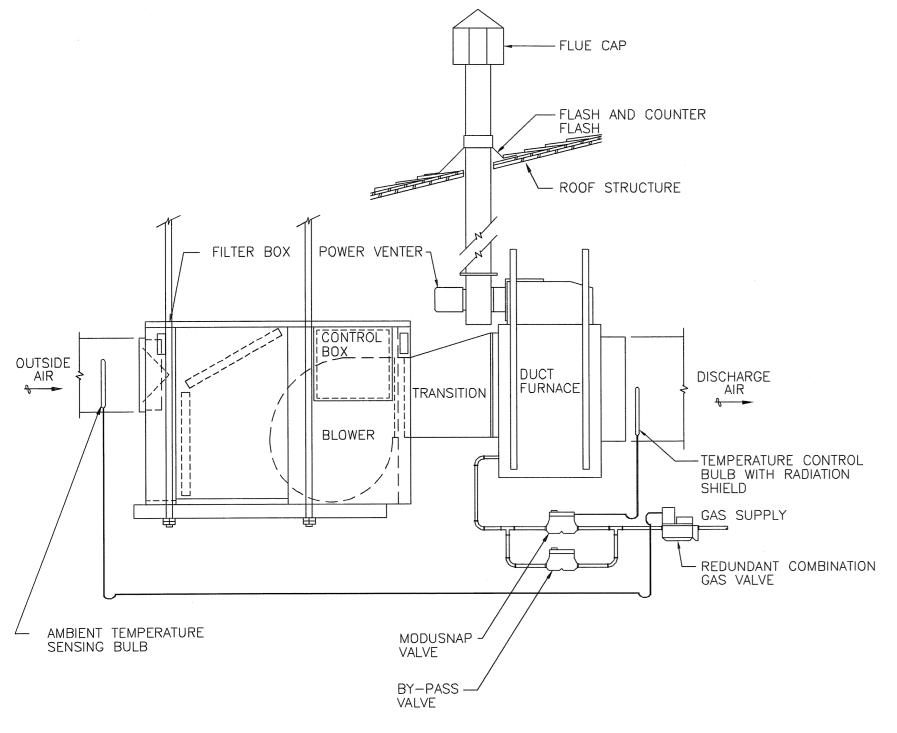
ROOF MOUNTED RELIEF AIR HOOD SCALE: NOT TO SCALE



CONCENTRIC ROOF TERMINATION FOR FURNACES SCALE: NOT TO SCALE

1. EXHAUST AND RETURN GRILLES ARE SIMILAR.
2. EITHER METHOD IS ACCEPTABLE SUPPORT TO STRUCTURE — -SPIN IN FITTING WITH BALANCING DAMPER. SEE SPEC. INSULATION DRAW BAND -DUCT DRAW BAND -FLEXIBLE DUCT ----ROUND NECK SAME AS DUCT SIZE -SHEET METAL SUPPLY CEILING DIFFUSER WITH SQUARE -DUCT. SEE PLANS FOR SIZE TO ROUND NECK ADAPTOR `RADIUS + 2D MIN. LAY-IN-LINE WITH 1" OF ACOUSTICAL INSULATION SURFACE MOUNT-SEE PLAN FOR DUCT SIZE SEE PLAN FOR NECK SIZE ---AND LOCATION - SHEET ROCK CEILING LAY-IN TEE BAR CEILING -SURFACE MOUNT CEILING DIFFUSER DETAIL

SCALE: NOT TO SCALE

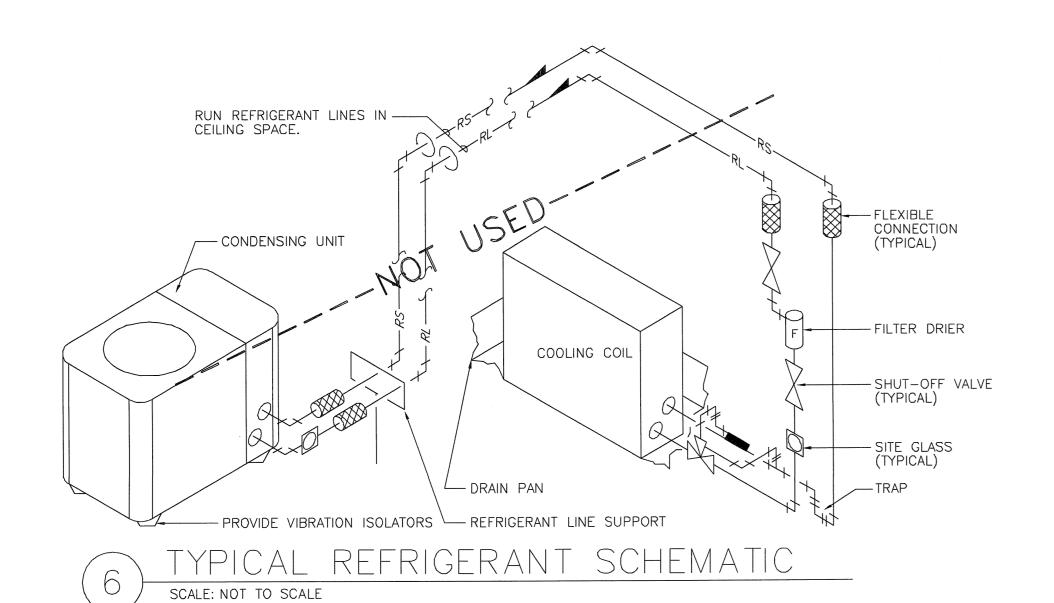


SUPPLY AIR PLENUM --CONCENTRIC VENT AND ( COMBUSTION AIR PIPES M201 FRESH AIR DUCT ----CONDENSING TYPE-GAS FURNACE RETURN AIR PLENUM-RETURN TO BOTTOM ONLY SHOWN ON SIDE FOR CLARITY GAS PIPING - FURNACE CONDENSATE (2) BOTTOM FILTER RACK-DRAIN LINE -FLOOR DRAIN FIELD FABRICATED RETURN-AIR PLENUM. FILTER REMOVAL SPACE RETURN AIR DUCT ----FLOOR STRUCTURE-FLOW FURNACE DETAIL SCALE: NOT TO SCALE

-TRIANGLE MVR-G VENTILATOR WITH BIRDSCREEN. SEE PLAN FOR DUCT SIZE. - SEALANT -GALV. STEEL COLLAR SEAL AIR TIGHT TO DUCT AND ROOF DECK. —COMMON EXHAUST RISE BACKDRAFT DAMPER — DO NOT RESTRICT **>----**EXHAUST FAN. SUPPORT FROM ROOF STRUCTURE—INDEPENDENT OF SUSPENDED CEILING

CEILING EXHAUST FAN DETAIL

DUCT FURNACE/SUPPLY FAN DETAIL SCALE: NOT TO SCALE



FLUE CAP--SEAL WATER TIGHT -STORM COLLAR - RUN FLASHING BELOW SHINGLES ROOF FLASHING-FLASHING OVER-SHINGLES SHINGLES--ROOF DECK SCALE: NOT TO SCALE

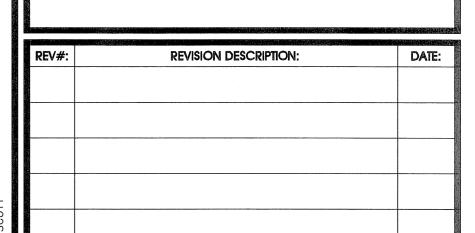


120 North Twelfth Avenue Pocatello, Idaho 83201

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC. Unauthorized use will be prosecuted to the fullest extent of the Law.

Copyright © 2006 by: NIELSON ENGINEERING, INC.





This document and the ideas incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

Copyright © 2006 SKYLINE A/E/S, INC.

No.8297 GORDON A. NIELSON

BIG CREEK CAMPGROUND RESTROOMS BEAR LAKE STATE PARK Sheet Title:

**RESTROOM** MECHANICAL PLAN

Project Numbers: DFCM: 06190510 NEI: 0635 Drawn By: Drawing Type: SVB Sheet Number: M50 Reviewed By: Sheet Scale: 1/2" = 1'-0"

DUCT FURNACE SCHEDULE									
SYMBOL	MANUFACTURER & MODEL	FUEL	(1) INPUT BTU/HR.	(2) OUTPUT BTU/HR.	(IN.) FLUE SIZE	CFM	A.P.D. ("W.G.")	TEMP. RISE (F°)	COMMENTS
(DF-1)	HASTINGS IHRDV-160	PROP.	160,000	124,800	6	800	0.10	155	(1)(2)(3)(4)
		d							

- (1) CAPACITY AT SEA LEVEL.
- (2) CAPACITY AT 6000 FT. ELEVATION.
- (3) UNIT EQUIPPED WITH MODULATING GAS VALVE DOWN TO 30% RATED INPUT.
- (4) UNIT COMPLETE WITH POWER VENTER. (5) COMPLETE WITH OUTDOOR AIR THERMOSTAT WITH REMOTE BULB; MODEL T6031A1029.
- (6) COMPLETE WITH MODUSNAP GAS VALVE AND BYPASS MANIFOLD.

#### REGISTER AND GRILLE SCHEDULE

DESIGNATION	DESCRIPTION	SIZE	MAX. CFM	MAX. N.C.
CD-1	PERFORATED FACE CEILING DIFFUSERS REMOVABLE FACE & CORE. W/O.B.D. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE. LAY-IN FRAMES SHALL BE 24" x 24", 24" x 12", OR 12" x 12" AS REQUIRED. TO FIT CEILING TILE SPACE AVAILABLE. DIFFUSER SHALL BE PRICE IND. MODEL PDN. INDIVIDUALLY ADJUSTABLE CURED BLADES. PROVIDE ROUND NECK ADAPTER.	6 x 6 8 x 8 9 x 9 10 x 10 6 x 18 12 x 12 15 x 15 18 x 18	125 220 250 320 350 425 625 900	30
RG-1	PERFORATED FACE CEILING RETURN AIR UNIT, REMOVABLE FACE & CORE. W/O.B.D. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE. LAY-IN FRAMES SHALL BE 24" x 24", 24" x 12", OR 212" x 12" AS REQUIRED TO FIT CEILING TILE SPACE AVAILABLE. RETURN AIR UNITS SHALL BE PRICE MODEL PDDR. AIR QUANTITY SHALL MATCH ROOM SUPPLY OR EXHAUST AIR QUANTITY.	10 x 10 12 x 12 14 x 14 10 x 22 16 x 16 18 x 18 20 x 20 22 x 22	350 500 550 625 725 900 1000 1320	30
EG-1	PERFORATED FACE CEILING EXHAUST AIR UNIT, WITH O.B.D REMOVABLE FACE AND CORE. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE.  LAY-IN FRAMES SHALL BE 24" x 24" x 12", OR 12" x 12" AS REQUIRED TO FIT CEILING TILE SPACE AVAILABLE. EXHAUST UNITS SHALL BE PRICE MODEL PDDR.	10 x 10 12 x 12 14 x 14 15 x 15	350 500 680 780	20

EXHAUST FAN SCHEDULE									
SYMBOL	MANUFACTURER	MODEL	CFM	STATIC PRESSURE IN. WG.	H.P.	RPM	VOLTS/PHASE/CYCLE	AREA SERVED	COMMENTS
(EF-1)	LOREN-COOK	GN 920	850	0.4	0.5	782	115/1/60	TOILET ROOM	(1)(2)(4)(5)
								J-	

- (1) ALL CAPACITIES AT 6000 FT. ELEVATION.
- (2) DIRECT DRIVE CEILING EXHAUST FAN. PROVIDE GRAVITY BACKDRAFT DAMPER, INTEGRAL THERMAL OVERLOAD PROTECTION AND DISCONNECT.
- (3) CONTROL: ON-OFF WALL SWITCH BY DIV. 16
- (4) CONTROL: INTERLOCK WITH RELATED SUPPLY FAN TO SERVE SPACE.
- (5) EQUIPPED WITH FAN SPEED CONTROL.

	ROOF VENT SCHEDULE								
SYMBOL	MANUFACTURER	MODEL	THROAT AREA	CFM	MAX STATIC PRESSURE	COMMENTS			
⟨RV−1⟩	LOREN-COOK	16 x 16 VJ	16 × 16	800	0.1	(1)			

- (1) PROVIDE WITH PRE-MANUFACTURED ROOF CURB.
- (2) INTERLOCK MOTORIZED DAMPER WITH EXHAUST FAN, EF-1, BY DIV. 16.

SUPPLY FAN SCHEDULE										
SYMBOL	MANUFACTURER	MODEL	CFM	STATIC PRESSURE IN. WG.	H.P.	RPM	VOLTS/PHASE/CYCLE	AREA SERVED	STATIC EFF %	COMMENTS
⟨SF-1⟩	LOREN COOK	SDB 120	780	1.0	114	1382	115/1/60	RESTROOM	40.00	(1)(2)(3)(4)(5)

- (1) ALL CAPACITIES AT 6000 FT. ELEVATION.
- PROVIDE GRAVITY BACKDRAFT DAMPER, INTEGRAL THERMAL OVERLOAD PROTECTION.
- (3) CONTROL: ATC
- (4) COMPLETE WITH DB-F-10 FILTER UNIT.
- (5) COMPLETE WITH 7-DAY PROGRAMMABLE THERMOSTAT WITH LOCKING COVER.

REVISION DESCRIPTION: DATE:



This document and the ideas Incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYUNE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

GORDON A. Copyright © 2006 SKYLINE A/E/S, INC.

BIG CREEK CAMPGROUND RESTROOMS BEAR LAKE STATE PARK

Sheet Title:

RESTROOM MECHANICAL PLAN

vn By: SVB	Project Numbers: DFCM: 06190510 NEI: 0635	Drawing Type:
gned By: SVB	Date: MAY 2006	Sheet Number:
ewed By: GAN	Sheet Scale: 1/2" = 1'-0"	

120 North Twelfth Avenue Pocatello, Idaho 83201 Nielson Engineering, Inc. PHONE (208) 232-2577 FAX (208) 234-0918 Consulting Engineers

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC.

Unauthorized use will be assessed to be a seed of the project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC. Unauthorized use will be prosecuted to the fullest extent of the Law.

CVIDO	SYMBOL LEGEND	SYMBOL	SYMBOL LEGEND  DESCRIPTION	SYMBOL	SYMBOL LEGEND  DESCRIPTION
	DESCRIPTION  CE AND LINE SYMBOLS	l	RECEPTACLE, SPECIAL PURPOSE. PROVIDE RECEPTACLE TO	M)	METER.
LINLING	L AND LINE STIMBOLS	<b>⊕</b>	MATCH EQUIPMENT PLUG.  RECEPTACLE, DRYER: NEMA 10-30R.		
A5 E-501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.	₩ D			DISCONNECT SWITCH, FUSED.
E-301/		₩ R	RECEPTACLE, RANGE: NEMA 10-50R.		DISCONNECT SWITCH, UNFUSED.
15	ELEVATION OR SECTION INDICATOR, EXTERIOR: A5	<u> </u>	RECEPTACLE, CLOCK HANGER: NEMA 5-15R.	X <sup>1</sup>	STARTER, COMBINATION WITH DISCONNECT SWITCH.
E-201	INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION	T	THERMOSTAT.	X	STARTER OR MOTOR CONTROLLER.
	IS SHOWN.	FB#	FLUSH FLOOR BOX. "#" SHOWN ON DRAWINGS. REFER TO WRING DEVICE SCHEDULE IN SECTION 16140 FOR	•	PUSHBUTTON.
A5	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201	[10#]	CONFIGURATION AND DEVICES.	•	PUSHBUTTONS, MOTOR CONTROL.
E-201	INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.		POWER POLE. "#" SHOWN ON DRAWINGS. REFER TO	<u>20110.</u>	PANELBOARD CABINET, FLUSH MOUNTED.
100	ROOM OR SPACE NUMBER.	PP#	WIRING DEVICE SCHEDULE IN SECTION 16140 FOR CONFIGURATION AND DEVICES.	ZIIIID	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
$\overline{\langle 1 \rangle}$	KEYNOTE INDICATOR.	Ф	SWITCH, DIMMER.	VIIIIIIIII	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
$\overline{\wedge}$	REVISION INDICATOR.	X \$	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES	LIGHTING	(REFER TO FIXTURE SCHEDULE FOR SYMBOLS
(CU-1)	EQUIPMENT INDICATOR.	X \$2	CONTROLLED).  SWITCH, DOUBLE POLE ("x" INDICATES FIXTURES	(W-3)	
A		X \$3	CONTROLLED).  SWITCH, THREE-WAY ("x" INDICATES FIXTURES	(W-5)	FIXTURE IDENTIFICATION: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
		\$3 X	CONTROLLED).		
✓	BREAK, ROUND.	\$4	SWITCH, FOUR-WAY ("x" INDICATES FIXTURES CONTROLLED).	(W-3)	FIXTURE IDENTIFICATION, EMERGENCY WITH BATTERY PACK, CONNECTED TO GENERATOR AS INDICATED: (W-3)
TCH_LINE XX/X-XXX	MATCH LINE INDICATOR: CENTER, EXTRA WIDE LINE.	\$DS	SWITCH, DOOR.		INDICATES FIXTURE TYPE AS SCHEDULED.
	NEW LINE: MEDIUM LINE.	\$K	SWITCH, KEY OPERATED.	LIGHTING	CONTROL
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE.	\$LM	SWITCH, LOW VOLTAGE MASTER.	>• <	OCCUPANCY SENSOR, ULTRASONIC, CEILING.
	EXISTING TO REMAIN LINE: THIN LINE.	\$M	SWITCH, MOMENTARY.	> <b>†</b> <w.p.< td=""><td>WEATHER PROOF OCCUPANCY SENSOR, ULTRASONIC, CEILING.</td></w.p.<>	WEATHER PROOF OCCUPANCY SENSOR, ULTRASONIC, CEILING.
	DEMOLITION LINE: DASHED, MEDIUM LINE.	\$0\$	SWITCH, OCCUPANCY SENSOR.	<b>③</b>	OCCUPANCY SENSOR, DUAL TECHNOLOGY, DIRECTIONAL.
	PROPERTY LINE: DASHED, WIDE LINE.	\$P	SWITCH, PILOT LIGHT.		
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE.	\$T	SWITCH, TIMER OPERATED.	-	
DINIC M	ETHODS	\$WP	SWITCH, WEATHERPROOF.		
KING W		*	AL POWER AND DISTRIBUTION		
	WIRING.		T	_	
	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND		FUSE WITH RATING (ONE-LINE DIAGRAM).		
A-1,3,5	NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED 200 FEET.		DISCONNECT, FUSED (ONE-LINE DIAGRAM).		
	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND	1	DISCONNECT, NONFUSED (ONE-LINE DIAGRAM).		
A-1,3,5	NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE. FOR BRANCH WIRING USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED 200 FEET.				
	TOWNSHIT OTHER PROPERTY DESCRIPTION OF AND MARK	Ţ	DISCONNECT WITH FUSE AND MOTOR STARTER COMBINATION (ONE-LINE DIAGRAM).		
<u>+</u>	CONDUIT STUB. DIMENSION RECORD DRAWINGS AND MARK.  CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR.				
① ①	REFER TO ONE-LINE DIAGRAM.  JUNCTION BOX.				
	JUNCTION BOX, SYSTEMS FURNITURE COMMUNICATION	С	OVERLOAD RELAY (ONE-LINE DIAGRAM).		
⊕ <sub>SC</sub>	CONNECTION.	)	,	_	
O <sub>SP</sub>	JUNCTION BOX, SYSTEMS FURNITURE POWER CONNECTION.	<del> </del>	STARTER (ONE-LINE DIAGRAM).		
<u></u>	EARTH GROUND (ONE-LINE DIAGRAM).	5			
iking D	EVICES	- (	CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).		
	RECEPTACLE, SINGLE: NEMA 5-20R.			-	
<b>b</b>	RECEPTACLE, DUPLEX: NEMA 5-20R.	0	MOTOR.		
ВА	RECEPTACLE, DUPLEX, ABOVE COUNTER: NEMA 5-20R.	F	EXHAUST FAN OUTLET.		
Фс	RECEPTACLE, DUPLEX, CEILING: NEMA 5-20R.		HEATER, ELECTRIC RESISTANCE.		
<u></u> Вр	RECEPTACLE, DUPLEX, DEDICATED CIRCUIT: NEMA 5-20R.	36	TRANSFORMER, CURRENT (ONE-LINE DIAGRAM).		
⊕ <sub>DF</sub>	RECEPTACLE, DUPLEX, DRINKING FOUNTAIN: CONCEAL WATER COOLER RECEPTACLE BEHIND WATER COOLER. SEE DIVISION 15 SHOP DRAWINGS FOR INSTALLATION REQUIREMENTS.	)225/3 "1H"	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).		
⊎ <sub>IG</sub>	RECEPTACLE, DUPLEX, ISOLATED GROUND: NEMA 5-20R.				
₩s	RECEPTACLE, DUPLEX, SWITCHED: NEMA 5-20R.			<del>_</del>	
 ψυς	RECEPTACLE, DUPLEX, FLOOR, UNDER CARPET: NEMA 5-20R.	-			
₩ w	RECEPTACLE, DUPLEX, WET LABEL, "WEATHERPROOF IN USE": NEMA 5-20R.				
₩ WP					
₩P_	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT				
11	INTERRUPTER: NEMA 5-20R.  RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT	_			
₩P	INTERRUPTER, WEATHERPROOF: NEMA 5-20R.				
	RECEPTACLE, DUPLEX, RECESSED: NEMA 5-20R.				
∰s_	RECEPTACLE, DUPLEX, SWITCHED, RECESSED: NEMA 5-20F	(. <sub> </sub>			
<b>#</b>	RECEPTACLE, QUADRAPLEX: NEMA 5-20R.				
	DECEDIACIE QUADRARIEV WITH CROUND FAILT CIRCUIT				

RECEPTACLE, QUADRAPLEX WITH GROUND FAULT CIRCUIT

INTERRUPTER: NEMA 5-20R.

ABBREVIATIONS ELECTRICAL SHEET INDEX

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

LFMC

LFNC

MATV

MAX

мсв

MDP

MOCP

NFPA

OH DR

SFBA

SWGR

TTB

TVSS

W/O

XFMR

SINGLE POLE

ONE-WAY

TWO-WAY

SINGLE-PHASE

THREE-PHASE

THREE-WAY

OUTLET

THROW

FOUR-WIRE

FOUR-WAY

ADJACENT

CAPACITY

ALUMINUM

ANNUNCIATOR

AS REQUIRED

AUDIO VISUAL

TRANSFORMER

CIRCUIT BREAKER

CLOSED CIRCUIT

CUSTOM COLOR AS

CUSTOM FINISH AS

OWNER INSTALLED

REPRESENTATIVE

CONTROL PANEL

CABLE TELEVISION

UNIT OF SOUND LEVEL

DOUBLE POLE DOUBLE

DISCONNECT SWITCH

ELECTRICAL METALLIC

EMERGENCY POWER OFF

FIRE ALARM CONTROL

FREIGHT ON BOARD

FULL LOAD AMPS

FULL VOLTAGE

GENERATOR

INTERRUPTER

PROTECTION HEAVY DUTY

GROUND FAULT

HIGH INTENSITY

HORSE POWER

HIGH VOLTAGE

INPUT/OUTPUT

KILOVOLT AMPERE

INFRARED

KILOVOLT

ISOLATED GROUND

INTERMEDIATE METAL

INSULATED/ISOLATED

HERTZ

DISCHARGE

NON-REVERSING

ELECTRICAL NONMETALLIC RR

FLEXIBLE METAL CONDUIT SPEC

FULL VOLTAGE REVERSING ST

GROUND FAULT CIRCUIT

HAND-OFF-AUTOMATIC

HIGH POWER FACTOR

HIGH PRESSURE SODIUM UGND

**EMERGENCY** 

EQUIPMENT

FIRE ALARM

EXISTING

PANEL

SELECTED BY ARCHITECT NIC

SELECTED BY ARCHITECT OC

CONTRACTOR FURNISHED/ OCP

CONTRACTOR FURNISHED/ OF/CI

CONTRACTOR INSTALLED

CONSTRUCTION MANAGER

CONTRACTING OFFICER'S

CURRENT TRANSFORMER | PF

CONVENIENCE OUTLET

TELEVISION

TELEVISION

CIRCUIT

CONDUIT

AMPERE

BB XFMR BUCK-BOOST

ARMORED CABLE

AMERICANS WITH

DISABILITIES ACT

ABOVE FINISHED FLOOR

ABOVE FINISHED GRADE

AMPERE INTERRUPTING

AMPS SHORT CIRCUIT

AUTOMATIC TRANSFER

AMERICAN WIRE GAGE

COMMUNITY ANTENNA

TWO-CONDUCTOR

THREE-CONDUCTOR

FOUR-POLE DOUBLE

FOUR-POLE SINGLE

QUADRUPLE RECEPTACLE

KILOVOLT AMPERE

KILOWATT HOUR

METAL CONDUIT

LIGHT EMITTING DIODE

LIQUID TIGHT FLEXIBLE

LIQUID TIGHT FLEXIBLE

NONMETALLIC CONDUIT

LOW PRESSURE SODIUM

LOCKED ROTOR AMPS

REACTIVE

KILOWATT

LIGHTING

MAXIMUM

METAL CLAD

MOTOR CIRCUIT

PROTECTION

MANHOLE

MINIMUM

CODE

LOW VOLTAGE

MASTER ANTENNA

TELEVISION SYSTEM

MINIMUM CIRCUIT AMPS

MAIN CIRCUIT BREAKER

MOTOR CONTROL CENTER

MAIN DISTRIBUTION PANEL

MAXIMUM OVERCURRENT

MOTOR GENERATOR

MAIN LUGS ONLY

NOT APPLICABLE

NORMALLY CLOSED

MANUFACTURERS

NOT IN CONTRACT

NORMALLY OPEN

NOT TO SCALE

OVER CURRENT

OWNER FURNISHED/

OWNER FURNISHED/

OBTAIN FROM PLANS

OVERHEAD (COILING)

OWNER INSTALLED

CONTRACTOR INSTALLED

POTENTIAL TRANSFORMER

REFLECTED CEILING PLAN

REVOLUTIONS PER MINUTE REMOVE AND RELOCATE

RIGID METAL CONDUIT

SHORT CIRCUIT AMPS

STANDARD COLOR AS

SQUARE FOOT (FEET)

STANDARD FINISH AS

SINGLE POLE, SINGLE

SPECIFICATION

SINGLE THROW

SWITCHBOARD

SWITCHGEAR

TWIST LOCK

BOARD

TYPICAL

SUPPLY

VOLTS

WITH

WITHOUT

UNDERFLOOR

UNDERGROUND

VOLT AMPERE

CONTROLLER

WEATHERPROOF

TRANSFORMER

TELEVISION

TELEPHONE POLE TWISTED PAIR

TELEPHONE TERMINAL

TRANSIENT VOLTAGE

SURGE SUPPRESSER

UNINTERRUPTIBLE POWER

VARIABLE FREQUENCY

THROW START/STOP

SELECTED BY ARCHITECT

SELECTED BY ARCHITECT SINGLE POLE, DOUBLE

RIGID NONMETALLIC

ASSOCIATION

NATIONAL FIRE

NIGHT LIGHT

ON CENTER

PROTECTION

OVERLOAD

PHASE

PANEL

QUANTITY

REMOVE

CONDUIT

PUSHBUTTON

POWER FACTOR

NATIONAL ELECTRICAL

NATIONAL ELECTRICAL

NATIONAL FIRE CODE

PROTECTION ASSOCIATION

PROTECTION

SHEET NO SHEET TITLE SHEET INDEX, SYMBOL LEGEND, GENERAL NOTES RESTROOM LIGHTING & POWER PLAN E501 DETAILS SCHEDULES & SINGLE LINE DIAGRAM

### DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVE: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS. APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS.

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED

ELECTRONIC SYSTEMS: THE TERM "ELECTRONIC SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS,

GENERAL ELECTRICAL NOTES

CLARIFICATION METHODS: AT THE TIME OF BIDDING. BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.

OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT

A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.

B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND

BONDS TO THE INSTALLER. C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE. THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.

- EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.
- SUBMITTALS: PROVIDE SUBMITTALS IN THREE RING BINDERS WITH JOB NAME, SUBCONTRACTOR, AND VOLUME ON THE BINDING. PREPARE TABS FOR EACH SPECIFICATION SECTION REQUIRING SUBMITTALS. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.
- REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND
- ELECTRICAL CONTRACTOR SHALL COORDINATE ELECTRICAL SERVICE TO NEW RESTROOM BUILDING WITH LOCAL UTILITY PRIOR TO BID. INCLUDE ALL POWER COMPANY COSTS ASSOCIATED WITH NEW SERVICE IN BASE BID.

REVISION DESCRIPTION: DATE:



This document and the ideas Incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted

PROFESS/ MICHAEL S. INSKEED ′Nő.5931691 / -2202 to the fullest extent of the law.

Copyright © 2006 SKYLINE A/E/S, INC.

**BIG CREEK** CAMPGROUND RESTROOMS BEAR LAKE STATE PARK

**RESTROOM LIGHTING & POWER PLAN** 

1/4" = 1'-0"

Drawing Type:

Sheet Number:

E00

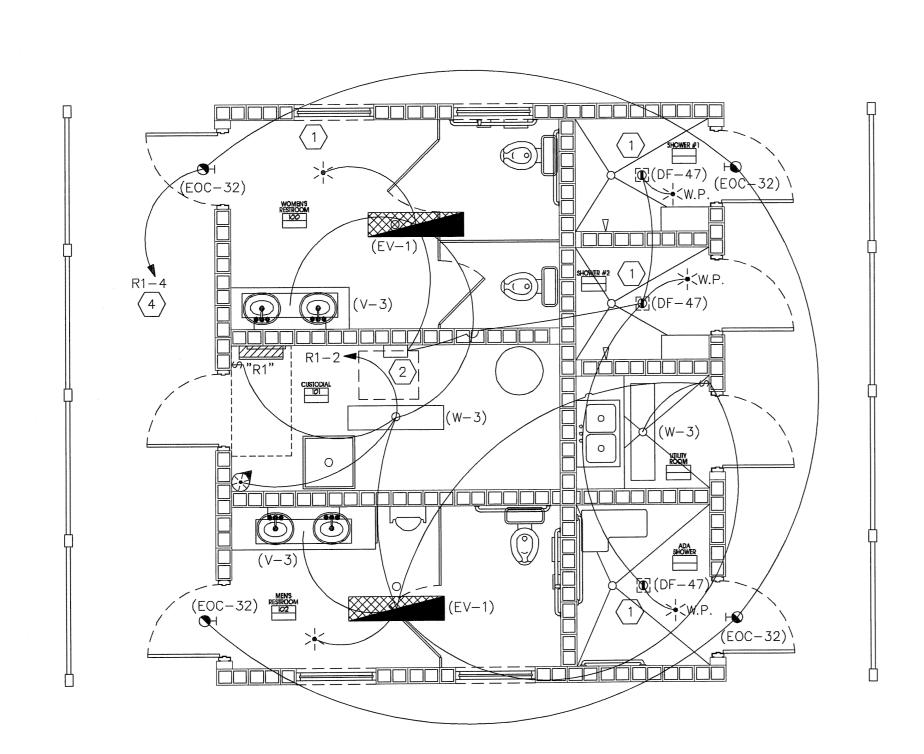
Drawn By: Project Numbers: DFCM: 06190510 NEI: 0635 Sheet Scale: Reviewed By:

Nielson Engineering, Inc. PHUNE (200) 232-237 Consulting Engineers

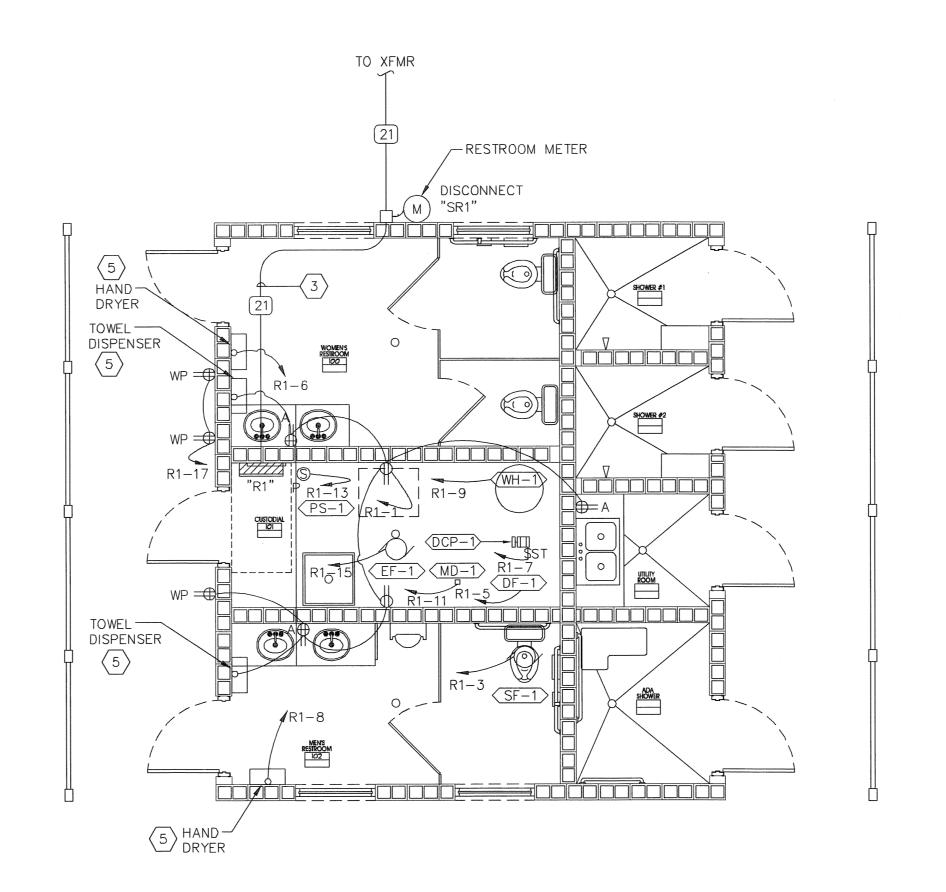
120 North Twelfth Avenue

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC. Unauthorized use will be prosecuted to the fullest extent of the Law.



RESTROOM LIGHTING PLAN



B RESTROOM POWER PLAN
SCALE: 1/4"=1'-0"



120 North Twelfth Avenue Pocatello, Idaho 83201 Consulting Engineers

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used, in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC. Unauthorized use will be prosecuted to the fullest extent of the Law.

Copyright © 2006 by: NIELSON ENGINEERING, INC.

GENERAL SHEET NOTES

ALL CONDUIT BELOW GRADE SHALL BE SCHEDULE 40 PVC OR HDP. ALL CONDUITS ABOVE GRADE AND ALL ELBOWS SHALL BE RMC OR EMT. ALL DIRECT BURIED CONDUITS SHALL BE BURIED 36 INCHES BELOW FINAL GRADE, MINIMUM. ALL CONDUCTORS TO BE THHN. ANY UNDERGROUND OR BURIED CONDUITS BENDS GREATER THAN 22\*SHALL BE PVC WRAPPED RIGID METAL. CONDUIT THROUGH FLOOR, CONCRETE AND/OR EARTH SHALL BE WRAPPED WITH PVC TAPE OR OTHER DFCM APPROVED COATING. ALL CONDUITS SHALL HAVE A YELLOW WARNING TAPE BURIED 12" ABOVE CONDUIT.

LOCATIONS OF MECHANICAL EQUIPMENT SHOWN ARE APPROXIMATE. SEE MECHANICAL DRAWINGS FOR ACTUAL LOCATIONS.

### ○SHEET KEYNOTES

SHOWER LIGHTS TO BE ON GFCI CIRCUIT BREAKERS.

TIME CLOCK FOR EXTERIOR LIGHTS, CIRCUIT TO CONVENIENCE OUTLET IN CUSTODIAL CLOSET.

CONDUIT BELOW SLAB

ROUTE EXTERIOR LIGHTING CIRCUIT THROUGH TIME CLOCK IN CUSTODIAL 101.

VERIFY EXACT LOCATION OF HAND DRYER AND TOWEL DISPENSER PRIOR TO ROUGH-IN.

)		
V#:	REVISION DESCRIPTION:	DATE:



This document and the ideas Incorporated herein, as an Instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

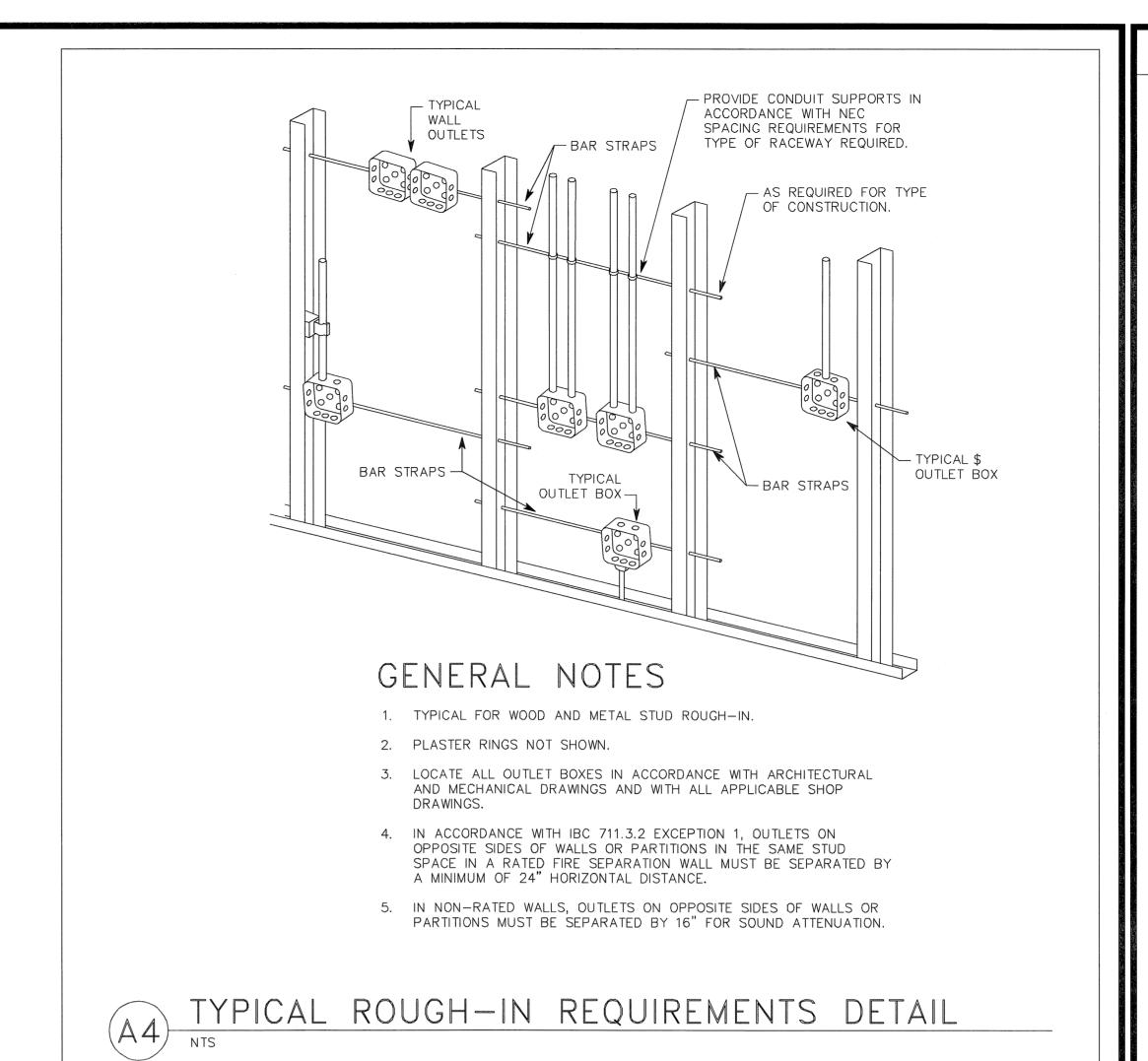
Copyright © 2006 SKYLINE A/E/S, INC.



BIG CREEK CAMPGROUND RESTROOMS BEAR LAKE STATE PARK

RESTROOM LIGHTING & POWER PLAN

Drawn By:	Project Numbers:	Drawing Type:
DDM	DFCM: 06190510 NEI: 0635	
Designed By:	Date:	Sheet Number:
DDM	MAY 2006	
Reviewed By:	Sheet Scale:	
MSI	1/4" = 1'-0"	of
		the State of the S



REVISION DESCRIPTION: DATE:



This document and the ideas Incorporated herein, as an instrument of professional service, are the property of SKYUNE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

Copyright © 2006 SKYLINE A/E/S, INC.

CAMPGROUND RESTROOMS
BEAR LAKE STATE PARK

120 North Twelfth Avenue Pocatello, Idaho 83201 Nielson Engineering, Inc. PHONE (208) 232-2577 FAX (208) 234-0918 Consulting Engineers

OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used, in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC.

DDM Unauthorized use will be prosecuted to the fullest extent of the Law.

Copyright © 2006 by: NIELSON ENGINEERING, INC.

**ELECTRICAL DETAILS** 

**BIG CREEK** 

Project Numbers: DFCM: 06190510 NEI: 0635 Drawing Type: DDM Sheet Number: MAY 2006 Sheet Scale: 1/4" = 1'-0"

### LIGHTING FIXTURE SCHEDULE

NOTE TO BIDDERS: COMPLY WITH SECTIONS 16511, 16521, AND 16570 OF THE SPECIFICATIONS. REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS. THE CATALOG NUMBERS LISTED BELOW HAVE BEEN CAREFULLY PREPARED TO ASSIST BIDDERS IN SELECTING PRODUCTS TO ACHIEVE THE DESIGN CONCEPT, HOWEVER, PRIOR TO BIDDING, EACH MANUFACTURER SHALL COMPARE THE CATALOG NUMBERS SHOWN WITH THE DESCRIPTION AND REQUIREMENTS ON THE DRAWINGS, AND SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES. SPECIFICALLY INCLUDED IN THIS EVALUATION SHALL BE THE VERIFYING OF PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS. NO ALLOWANCE OR REDRESS WILL BE ALLOWED FOR DISCREPANCIES THAT WERE NOT REPORTED TO THE ARCHITECT/ENGINEER IN TIME FOR CORRECTION OR CLARIFICATION BEFORE THE BID. THE REPORTING OF ANY AMBIGUITY IS THE RESPONSIBILITY OF THE BIDDER. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER. SUBMITTAL PACKAGE SHALL INCLUDE LAMP MANUFACTURER AND CATALOG NUMBER ON EACH FIXTURE SHEET. ON ALL PENDANT MOUNTED FIXTURES, PROVIDE A SECOND SET OF PENDANTS, OF A DIFFERENT LENGTH, AS DIRECTED BY THE ARCHITECT/ENGINEER, PROVIDED AND INSTALLED AT NO ADDITIONAL CHARGE. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES. UNIVERSAL VOLTAGE (120/277)

BALLAS	TS REQUIF	RED UNLESS NOTED OTHERWISE.				.,		
		FIXTURE CHARACTERISTICS						
		BODY / AIR / MOUNTING / DOOR						
SYMBOL	MARK	LENS/LOUVER/REFLECTOR/OTHER	LAMP	WATTS	VOLTS	MANUFACTURER	CATALOG NUMBER	NOTES
<b>(0)</b>	DF-47	RECESSED DOWNLIGHT; SHOWER	1-CF-A3	2 50W	277/120	V LITHONIA	VRR-2/26DTT-120-WL-LP1	
		LIGHT TRIM, 9" APERTURE,	RE835			KIRLIN	RV01054	
		HORIZONTAL, 32W CF-AMALGAM						
		LAMP. GASKET. TAMPER RESISTANT.						

E PREFIX INDICATES THAT FIXTURE IS PROVIDED WITH AN EMERGENCY BATTERY PACK TO PROVIDE POWER TO ANY 2, 3, 4 OR 8 FOOT FLOURESCENT LAMP COMPATIBLE WITH ALL STANDARD AND ELECTRONIC BALLASTS; COMPLETELY SELF-CONTAINED TO PROVIDE 90 MINUTES OF EMERGENCY POWER TO FIXTURE BALLAST; MINIMUM LIGHT OUTPUT FOR TYPICAL 4' LAMP SHALL

		BE 1100 LUMENS OR HIGHER; UNIVER TEST SWITCH AND AC "ON" INDICATOR NO DISASSEMBLY FOR TESTING.	SAL TRANSF OR; 10 YEAF	FORMER FOR PRO-RA	OR 120 OR TA WARRA	277 VOLTS; L NTY; INSTALL	LOW VOLTAGE PROTECTION, COMBINATION TEST SWITCH IN A MANNER THAT REQUIRES
E		EMERGENCY BATTERY PACK.		120/277\	V3W	IOTA BODINE LITHONIA PRESCOLITE HUBBELL CHLORIDE LIGHTOLIER SIDELITE	I-80 B50 PS-1400 EFPS-5 E96 CFP841 FBP50 S60F
<b>₽</b> E	OC-32	CF42, RECESSED J BOX. MEDIUM THROW, SQUARE, DECORATIVE. EMERGENCY. PHOTO—CELL.	CF42 RE835	50W	277/120V	MCPHILBEN LSI	101EM-MT-42TRF-CBA-DT-PC GBWS-FTM-42CFL-F-120/277-XX-NO-PC-EM
V	′−1 <b>※</b>	4', 2-LAMP WITH PRISMATIC LENS; 51" X 9 1/2" X 3 1/2", 16 GAUGE STEEL.	2-F32T8 RE835	65W	120V	KENALL FAIL—SAFE LUMINAIRE NEW STAR CD LIGHTING HOLCOR	N1048-C-232SB1-120/277  FPS-232-UNV-PROGRAM START  LVP-751-232-EBPS-120  51C-124-U-T8PROGRAM  VSL-24-232-UNV-EB  HSP2-2/32T8-120-TX-UNIVOLT-PROGRAM START

<b>♀</b> EOC−32	CF42, RECESSED J BOX. MEDIUM THROW, SQUARE, DECORATIVE. EMERGENCY. PHOTO—CELL.	CF42 RE835	50W	277/120V	MCPHILBEN LSI	GBWS-FTM-42CFL-F-120/277-XX-NO-PC-EM
V-1	4', 2-LAMP WITH PRISMATIC LENS; 51" X 9 1/2" X 3 1/2", 16 GAUGE STEEL.	2-F32T8 RE835	65W	120V	KENALL FAIL—SAFE LUMINAIRE NEW STAR CD LIGHTING HOLCOR	N1048-C-232SB1-120/277  FPS-232-UNV-PROGRAM START  LVP-751-232-EBPS-120  51C-124-U-T8PROGRAM  VSL-24-232-UNV-EB  HSP2-2/32T8-120-TX-UNIVOLT-PROGRAM STAR
V-3	4', 2-LAMP WITH PRISMATIC LENS: 51" X 9 1/2" X 3 1/2"; WALL MOUNT; 14 GAUGE STEEL; INNER LENS 1/8" PRISMATIC POLYCARBONATE; OUTER LENS 1/4" TEMPERED GLASS; UP AND DOWN LIGHT.	2-F32T8 RE835	65W	120V	KENALL CD LIGHTING MORELITE HOLCOR NEW STAR FAIL—SAFE	WDU4-H0/0-232SB1-U-L2/A-1 DWB-4-F-232-UNV-EB-25TG/12PA W-X-DPH94-132/132-7E-F2-EBPS-120 PWI-14-2/32T8-12PP/25CG-120-TX-UNIVOLT -PROGRAM START 531U/1D-142-14G250CTG/.125PPC-U-T8 PROGRAM-THTP FMW-1/132-UNV-81/96-PROGRAM START
W-3	NARROW BODY WRAPAROUND; 2-LAMP, APPROX; 3" X	2-F32T8 RE835	65W	277/120\	/ LITHONIA DAYBRITE	LB232-MVOLT-TUBPHP CAN232-UNV-1/2-EB-SPEC

## ELECTRICAL PANEL "R1" SCHEDULE

TOLISTI HASE, WIKE.		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						1					1			
40 V	, 1 PI	H 3 V	VIRE		22" W x 6" D, BOLT-ON											
SSORI	ES:	PANE	L DIR	ECTOR	RY, IDENTIFICATION, GROUNDING	BAR,	INSULAT	ED GRO	JND B	BAR, SUBFEED LUGS						
WIRING:																
00	P	0	UTLET	ΓS	DESCRIPTION	LCL	PHASE0	AD	LCL	DESCRIPTION	OUTLETS			OCP -		CKT
AMP	POLE	LTG	СО	PWR		kVA	Α	С	kVA		LTG	CO	PWR	AMP	POLE	NO
20	1		6	2	C.O. AND TOWEL DISPENSER	1.28	1.78		0.5	RESTROOM LIGHTS	9			20G	1	2
20	1			1	SUPPLY FAN SF-1	0.9		1.1	0.2	EXTERIOR LIGHTS	4			20	1	4
20	1			1	DUCT FURNACE DF-1	0.9	2.9		2.0	HAND DRYER			1	20	1	6
20	1			1	WH CIRC. PUMP DCP-1	0.5		2.5	2.0	HAND DRYER			1	20	1	8
20	1			1	WATER HEATER WH-1	0.5	0.5			SPARE				20	1	10
20	1			1	MOTORIZED DAMPER MD-1	0.2		0.2		SPARE		-		20	1	12
20	1			1	PROPANE SENSOR PS-1	0.6	0.6			SPARE				20	1 .	14
20	1			1	EXHAUST FAN EF-1	1.2		1.2		SPARE				20	1	16
20	1		2		VENDING	1.4	1.4			SPARE				20	1	18
20	1				SPARE			0.0		SPARE				20	1	20
20	1				SPARE		0.0			SPARE				20	1	22
20	1				SPARE			0.0		SPARE				20	1	24
23   20   1																
	240 V SSORI G: 00 AMP 20 20 20 20 20 20 20 20 20 20 20 20 20	240 V, 1 P SSORIES: G: OCP AMP POLE 20 1 20 1	240 V, 1 PH 3 V SSORIES: PANE G: OCP O AMP POLE LTG 20 1 20 1	240 V, 1 PH 3 WIRE  SSORIES: PANEL DIR  G:  OCP OUTLET  AMP POLE LTG CO  20 1 6  20 1 20 1  20 1 20 1  20 1 20 1  20 1 20 1  20 1 20 1  20 1 20 1  20 1 20 1  20 1 20 1  20 1 20 1  20 1 20 1  20 1 20 1	240 V, 1 PH 3 WIRE  SSORIES: PANEL DIRECTOR  G:  OCP OUTLETS  AMP POLE LTG CO PWR  20 1 6 2  20 1 1 1  20 1 1  20 1 1  20 1 1  20 1 1  20 1 1  20 1 1  20 1 1  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2  20 1 2	240 V, 1 PH 3 WIRE   22" W x 6" D, BOLT-ON	240 v, 1 Ph 3 wire   22" w x 6" D, BOLT-ON   100A	240 v, 1 Ph 3 wire   22" w x 6" D, BOLT-ON   100A AMPERE   SSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR, INSULAT   G:	240 V, 1 PH 3 WIRE   22" W x 6" D, BOLT-ON   100A AMPERE MAIN CONSTRUCTION, IDENTIFICATION, GROUNDING BAR, INSULATED GR	240 V, 1 PH 3 WIRE   22" W x 6" D, BOLT-ON   100A AMPERE MAIN C/B	240 V, 1 PH 3 WIRE   22" W x 6" D, BOLT-ON   100A AMPERE MAIN C/B   RESTROOM BLDG	AMP   POLE   LTG   CO   PWR   PANCE   DESCRIPTION   DESCRIPTION   LCL   RVA   A   C   RESTROOM BLDG   LTG   CO   PWR   CO   LTG   LTG   CO   LTG   CO	Add	A40 V, 1 PH 3 WIRE   22" W x 6" D, BOLT-ON   100A AMPER MAIN C/B   RESTROOM BLDG   NEMA 1	100	22" W x 6" D, BOLT-ON   100A AMPERE MAIN C/B   RESTROOM BLDG   NEMA 1

AMPS PER PHASE 60 42

QU	IPMENT	SCHEDULE	KEY
E	DIVISION 16		

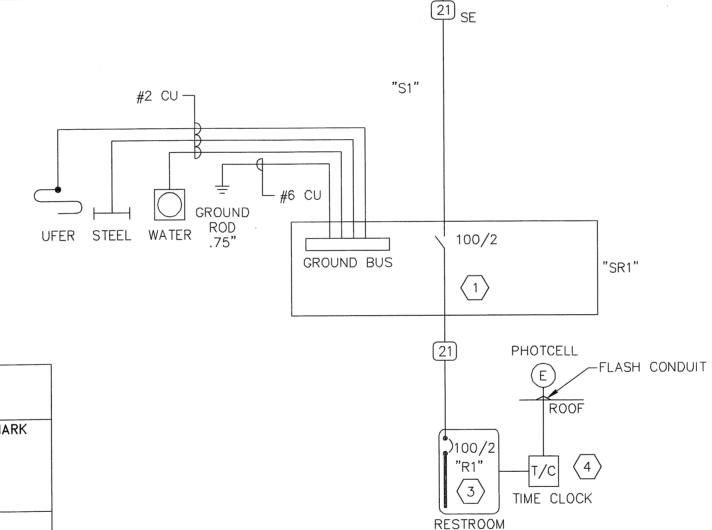
G = PROVIDE GFIC CIRCUIT BREAKER

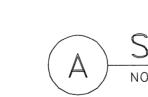
PANEL SIZE & TYPE:

CLIENT: DFCM

VOLTS/PHASE/WIRE:

Е	DIVISION 16
Q	FURNISHED WITH THE EQUIPMENT
*	COORDINATE WITH THE DIVISION 15 TEMPERATURE
	CONTROL INSTALLER
**	AUTOMATIC CONTROL WIRING BY DIVISION 15
HP	HORSE POWER. IF MOTORS UNDER 1HP ARE SHOWN TO
	BE THERMALLY PROTECTED ON THEIR NAMEPLATES, A
	NON-FUSED DISCONNECT SWITCH MAY BE SUBSTITUTED
	FOR THE THERMAL SWITCH.
НОА	HAND OFF AUTO SWITCH
RTU	DISCONNECT SWITCH LOCATED AT ROOF TOP UNIT
STD	MANUFACTURER'S STANDARD
TBD	TO BE DETERMINED BY CONTRACTOR BASED ON
	EQUIPMENT FLA RATING ON NAMEPLATE
CC#	CONDUCTOR & CONDUIT SCHEDULE SYMBOL NUMBER
##A	FRAME SIZE OF DISCONNECT SWITCH
##AF	AMP RATING OF FUSES IN FUSED DISCONNECT SWITCH
NF	NON FUSED DISCONNECT SWITCH
#P	# OF POLES





SINGLE-LINE DIAGRAM

BLDG

# EQUIPMENT SCHEDULE

WA232-U-SOP

WSM232UPS

WS-232A-UNV-PROGRAM START

WC4-232-EBPS120/277

MARK	QTY	ITEM DESCRIPTION			LOAD	DATA				WIRE AND CONDUIT SIZE		OVERCURRE PROTECTION			DISCONNECT			NOTES	MARK
			HP	kW	МСА	FLA	VOLT	PH	Hz		FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY		
													BANE		20A /1D	DANEL		1	MD-1
MD-1	1	FURNACE MOTORIZED DAMPER				2	120	1	60	CC1	E	20A/1P CB	PANEL	E	20A/1P CB	PANEL	Q		
EF-1	1	EXHUAST FAN	0.5			9.8	120	1	60	CC1	E	20A/1P CB	PANEL	Q	INTEGRAL SWITCH	P/O EQUIP	Q	4	EF-1
WH-1	1	WATER HEATER				3	120	1	60	CC1	E	20A/1P	PANEL	E	20A/1P	PANEL	Q		WH-1
DCP-1	1	WATER HEATER	1/6			4.4	120	1	60	CC1	Е	20A/1P CB	PANEL	E	THERMAL SWITCH	ADJ TO EQUIP	Q	1	DCP-1
PS-1	1	CIRCULATION PUMP PROPANE SENSOR				5	120	1	60	CC1	E	20A/1P CB	PANEL	Е	20A/1P CB	PANEL	Q	3	PS-1
DF-1	1	DUCT FURNACE				5	120	1	60	CC1	E	20A/1P CB	PANEL	Е	20A/1P	ADJ TO EQUIP	Q		DF-1
SF-1	1	SUPPLY FAN	1/3			7.2	120	1	60	CC1	E	20A/1P CB	PANEL	Q	INTEGRAL SWITCH	P/O EQUIP	Q	1,2	SF-1

FOR MOTORS LESS THAN 1 HP, IF MOTOR NAMEPLATE SHOWS THE MOTOR TO BE THERMALLY PROTECTED, A DISCONNECT MAY BE SUBSTITUTED FOR THE THERMAL SWITCH.

**METALUX** 

HUBBELL

COLUMBIA

LIGHTOLIER

- CONTROL FAN WITH 20A/1P SWITCH.
- PROVIDE SMOKE DETECTOR IN DUCT WORK

2-LAMP, APPROX; 3" X

10" X 48".

PROVIDE FUSES SIZED TO NAMEPLATE DATA ON MOTOR

### CONDUCTOR AND CONDUIT SCHEDULE

(E.G.)  $\begin{bmatrix} 5 \end{bmatrix}$ 

CONDUIT CONDUCTOR(NOTE 1)
SIZE QTY SIZE GR IG SE NOTES

.75 | 2 | 12 | 12 | 12 | 8 | 2

.75 | 3 | 12 | 12 | 12 | 8 | 2,3

4 | 12 | 12 | 12 | 8 | 2,3

							"						
		NOTE	S:					JUNDU	111				
						SCHEDULE NUMBER  SUBSCRIPT (NOTE 5)							
T	S	00	P ·	CKT									
_	PWR	AMP	POLE	NO		SYM	AMP	CONDUIT	CONDU				
		20G	1	2			-	SIZE	QTY				
		20	1	4		[1]	20	.75	2				
	1	20	1	6		2	20	.75	3				
	1	20	1	8		3	20	.75	4				
		20	1	10		4	30	.75	2				
		20	1	12		(5)	30	.75	3				
		20	1 .	14		6	30	.75	4				
		20	1	16		7	40	1	2				
		20	1	18		8	40	1	3				
		20	1	20		$\vdash = \vdash$							
		20	1	22		9	40	1	4				
		20	1	24	1	[10]	55	1	2				

AVERAGE AMPS PER PHASE 51

<u>UUU</u>120/240V

 $(M)\langle 2\rangle$ 

XFMR & PAD BY UP&L

	20	./5	4	12	12	12	0	2,0
4	30	.75	2	10	10	10	8	2
(5)	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
(10)	55	1	2	6	10	8	4	2
(11)	55	1	3	6	10	8	4	2
(12)	55	1.25	4	6	10	8	4	2
(13)	70	1.23	2	4	8	4	2	2
(14)	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
(16)	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
			4	3		3		2
(18)	85	1.25			8		2	
[19]	95	1.25	3	2	8	2	2	2
(20)	95	1.50	4	2	8	2	2	2
(21)	115	1.50	3	2	6	2	2	2
(22)	130	1.50	4	1	6	2	2	2
[23]	150	2	3	1/0	6	2	1/0	2
(24)	150	2	4	1/0	6	2	1/0	2
(25)	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
(30)	230	2.50	4	4/0	4	2	2/0	2
(31)	255	2.50	3	250	4	1	2/0	2
(32)	255	2.50	4	250	4	1	2/0	2
[33]	310	3	3	350	3	1/0	3/0	2
[34]	310	3	4	350	3	1/0	3/0	2
(35)	380	3.50	3	500	3	3/0	3/0	2
(36)	380	4	4	500	3	3/0	3/0	2
[37]	400	2 EA 2	3	3/0	3	3/0	3/0	2
[38]	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
[39]	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 2.50	4	250	1	4/0	3/0	2
(41)	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
(42)	620	2 EA 3	4	350	1/0	4/0	3/0	2,4
43	760	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	760	2 EA 4	4	500	1/0	4/0	3/0	2,4
(45)	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
45	855	3 EA 3	4	300		<del>                                     </del>	<del> </del>	2,4
					2/0	4/0		4
(47)	1000	3 EA 3.50	3	400	2/0	4/0	3/0	
(48)	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
(49)	1140	3 EA 4	3	500	3/0	4/0	3/0	4
(50)	1140	3 EA 4	4	500	3/0	4/0	3/0	4
(51)	1240	4 EA 3	3	350	3/0	4/0	3/0	4
(52)	1240	4 EA 3	4	350	3/0	4/0	3/0	4
(53)	1675	5 EA 3.50	4	400	4/0	4/0	4/0	4
(54)	2010		4	400	250	250	250	4
(55)	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		5						6
60		10 FA 4						6

(60) | 10 EA 4 CONDUCTOR AND CONDUIT SCHEDULE NOTES

- CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
- PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATIN SHOWN IN TABLE.
- PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING
- GROUND (GR) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTÒRS.
- WHEN SYMBOL SUBSCRIPT INDICATES "IG", INCLUDE "IG" OR INSULATED GROUND CONDUCTOR SCHEDULED ALONG WITH GR OR EQUIPMENT GROUND CONDUCTOR. WHEN SYMBOL SUBSCRIPT INDICATES "SE", SUBSTITUTE "SE" CONDUCTOR FOR "GR" CONDUCTO SHOWN WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEMS.
- RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.



Consulting Engineers OWNERSHIP OF DOCUMENTS

This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of NIELSON ENGINEERING, INC. and is not to be used, in whole or in part, for any other project without the written authorization of an authorized representative of NIELSON ENGINEERING, INC.

Unauthorized use will be prosecuted to the fullest extent of the Law.

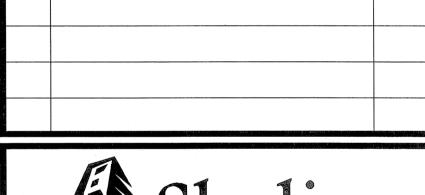
Copyright © 2006 by: NIELSON ENGINEERING, INC.

## GENERAL SHEET NOTES

- ALL CONDUIT BELOW GRADE SHALL BE SCHEDULE 40 PVC OR HDP. ALL CONDUITS ABOVE GRADE AND ALL ELBOWS SHALL BE RMC OR EMT. ALL DIRECT BURIED CONDUITS SHALL BE BURIED 36 INCHES BELOW FINAL GRADE, MINIMUM. ALL CONDUCTORS TO BE THHN. ANY UNDERGROUND OR BURIED CONDUITS BENDS GREATER THAN 22°SHALL BE PVC WRAPPED RIGID METAL. CONDUIT THROUGH FLOOR, CONCRETE AND/OR EARTH SHALL BE WRAPPED WITH PVC TAPE OR OTHER DFCM APPROVED COATING. ALL CONDUITS SHALL HAVE A YELLOW WARNING TAPE BURIED 12" ABOVE CONDUIT.
- PROVIDE OUTDOOR UTILITY METER BASES PER UP&L REQUIREMENTS.
- ALL DIRECT BURIED CONDUIT SHALL HAVE MAGNETIC "YELLOW WARNING" RIBBON 12" DIRECTLY ABOVE THE TOP OF THE CONDUIT.

### ○SHEET KEYNOTES

- NEMA 3R SERVICE ENTRANCE RATED EQUIPMENT.
- PROVIDE 3" CONDUIT TO METER FROM XFMR. CONDUCTOR TO METER BY UP&L.
- OBTAIN AVAILABLE FAULT CURRENT FROM LOCAL UTILITY AND SIZE PANEL WITH BREAKERS TO HANDLE FAULT CURRENT.
- EXTERIOR LIGHTING TO BE TURNED ON BY PHOTOCELL AND OFF BY TIME CLOCK.



**REVISION DESCRIPTION:** 



This document and the ideas Incorporated herein, as an instrument of professional service, are the property of SKYLINE A/E/S, INC. and are not to be used in whole or in part, for an other project without the written authorization of an authorized representative of SKYLINE A/E/S, INC. Unauthorized use will be prosecuted to the fullest extent of the law.

Copyright © 2006 SKYLINE A/E/S, INC



Project Title:

**BIG CREEK** CAMPGROUND RESTROOMS **BEAR LAKE STATE PARK** 

Sheet Title: SCHEDULES & SINGLE-LINE DIAGRAM

Drawn By: DDM	Project Numbers: DFCM: 06190510 NEI: 0635	Drawing Type:
Designed By:	Date:	Sheet Number:
DDM	MAY 2006	FZOT
Reviewed By:	Sheet Scale:	EOU
MSI	1/4" = 1'-0"	-4